

# IMPERIAL

## TUBING TOOLS

### CUTTING

Tube Cutters, Sawing Vises

### FLARING

45° Flares, 37° Flares, Double Flares

### BENDING

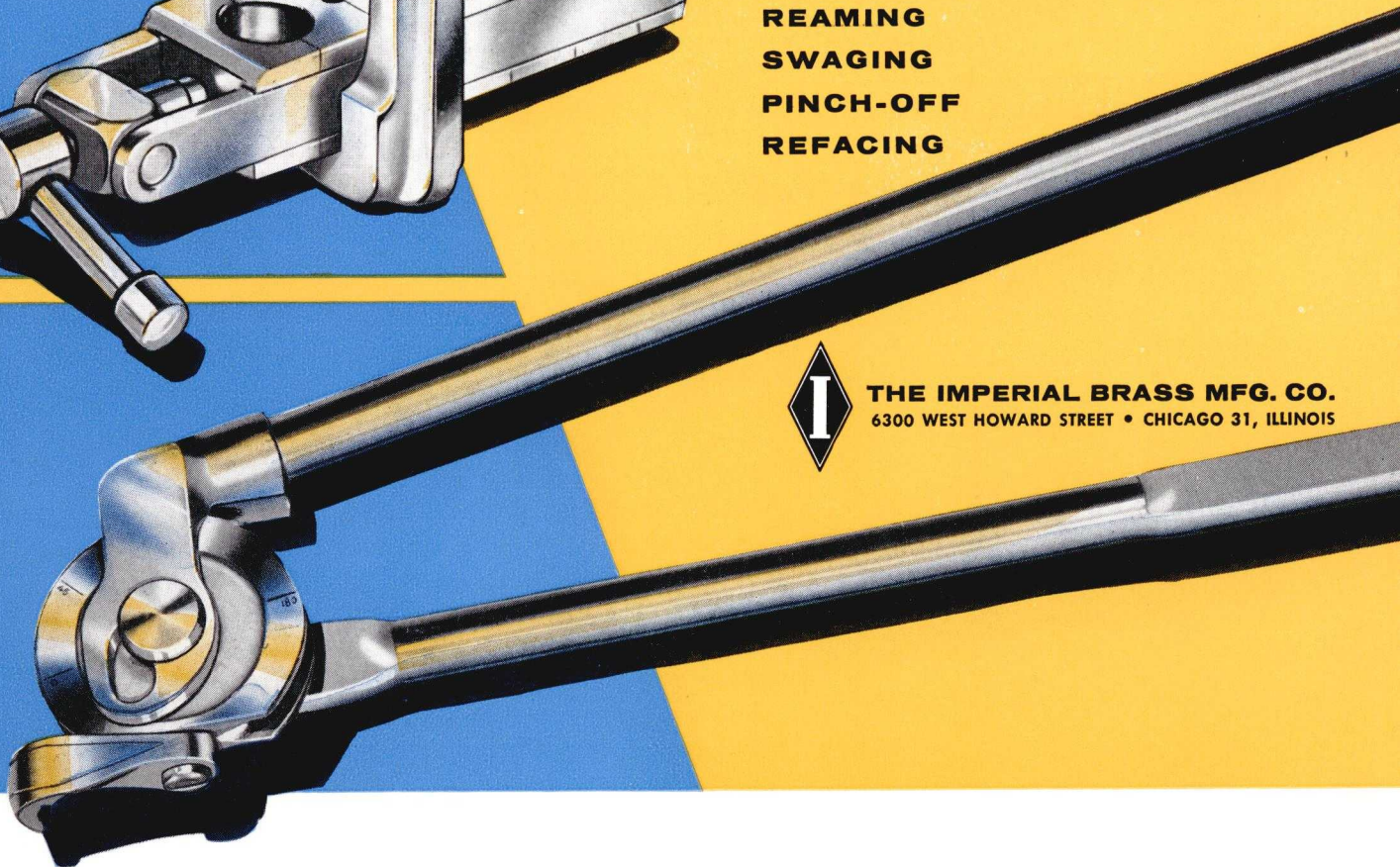
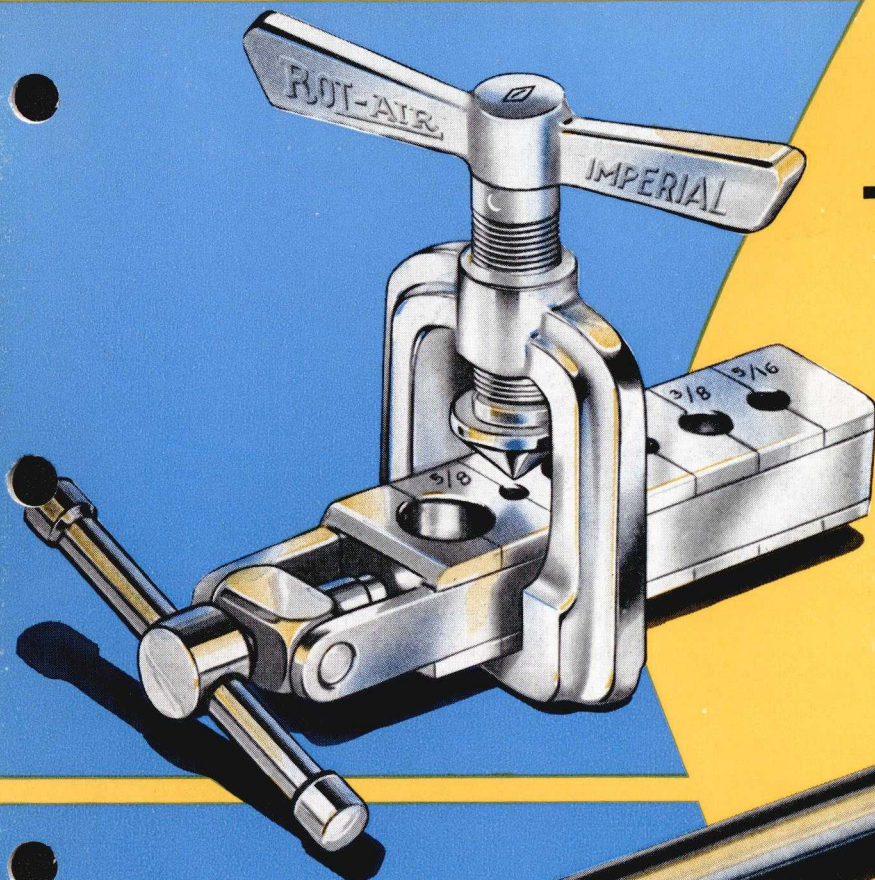
Lever Type, Gear Type, Spring Type

### REAMING

### SWAGING

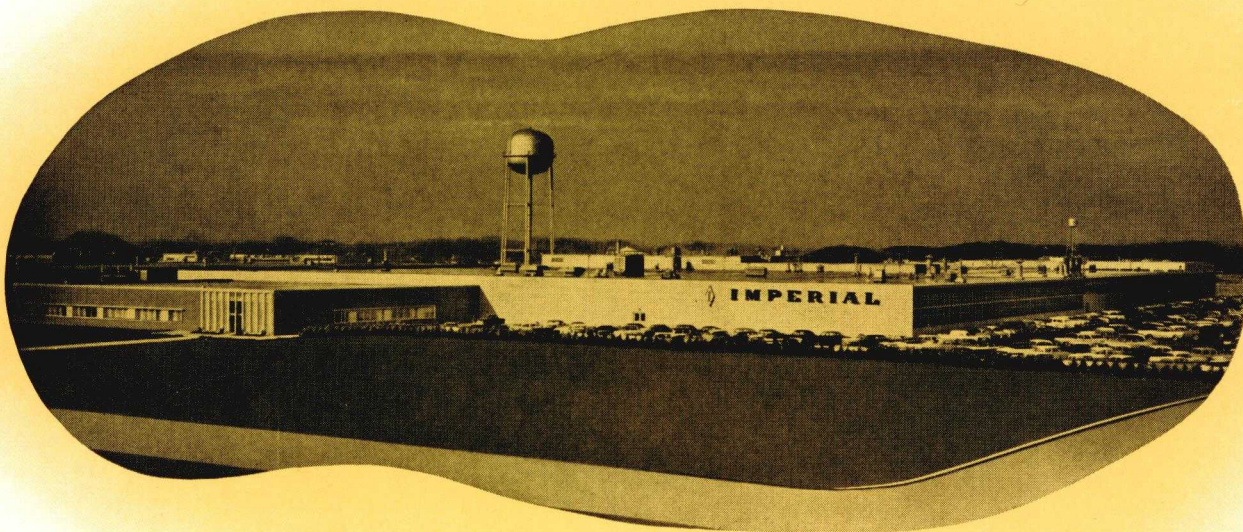
### PINCH-OFF

### REFACING



**THE IMPERIAL BRASS MFG. CO.**  
6300 WEST HOWARD STREET • CHICAGO 31, ILLINOIS






The Imperial Brass Manufacturing Company's new, fully integrated plant: dedicated to serving our customers better than ever with better-than-ever Imperial products.

## IMPERIAL...*the world's largest manufacturer of tubing tools*



Right from the beginning, Imperial established itself as industry's most dependable source of fine tubing tools and tube fittings. The same religious adherence to high standards of quality and the same determination to offer only the best, which have distinguished Imperial products for over 50 years, are evidenced in Imperial's complete line of tubing tools and fittings produced in our brand new Niles, Ill., (Chicago suburb) plant. Here standards remain the highest in the industry. And modern production methods and quality control team up with top design to bring you finer-than-ever Diamond I tools that make your tube working jobs easier, faster, more economical.

"Imperial" and  are trademarks registered in the U.S. Pat. Off. and are owned and in use by The Imperial Brass Mfg. Co.

Copyright 1958 by The Imperial Brass Mfg. Co.





## IMPERIAL *Hi-Duty*® 2-in-1 TUBE CUTTER

With Free Wheeling Ball Bearing Action

CARRIES ITS OWN  
SPARE CUTTING WHEEL

A spare cutting wheel is now included with the standard No. 274-F Imperial Hi-Duty Tube Cutter. This spare wheel is carried in recess in body of cutter, under the reamer.

Cuts hard or soft copper, brass, aluminum, thin-wall steel, block tin and lead tubing. Makes a clean, right angle cut. Leaves no burrs or chips to clog the line; leaves tubing round, ready for flaring.

Ball thrust bearings make this the easiest operating of all tube cutters. Tubing rolls on two rollers, adding to ease of operation. Flare cut-off groove in rollers makes it possible to remove a cracked flare without wasting any tubing, often eliminating replacing tubing.

Has high strength, light weight, aluminum alloy body which is extremely easy to handle. Length of tool remains the same regardless of size of tubing being cut.

Reamer folds out of way when not in use. Locks securely in open or closed position.

**No. 274-F Hi-Duty Cutter with Spare Cutting Wheel, for  $\frac{1}{8}$ " to 1" O.D. Tubing ( $\frac{1}{8}$ " to  $\frac{3}{4}$ " nominal). Overall length  $4\frac{1}{2}$ ". Wt. 6 oz.**

**No. 312-F Hi-Duty Cutter (without spare cutting wheel) for  $\frac{1}{4}$ " to  $1\frac{1}{8}$ " O.D. Tubing ( $\frac{1}{8}$ " to  $1\frac{1}{4}$ " nominal). Overall length  $5\frac{1}{2}$ ". Wt. 7 oz.**

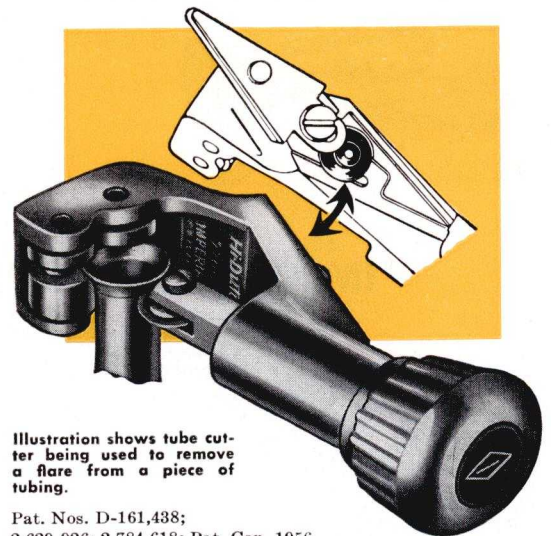
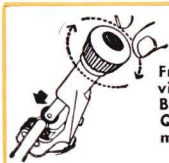


Illustration shows tube cutter being used to remove a flare from a piece of tubing.

Pat. Nos. D-161,438;  
2,629,926; 2,784,618; Pat. Can. 1956



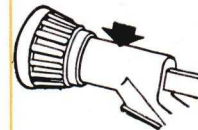
Free Wheeling Provided by Ball Thrust Bearings. Permits Quick Size Adjustment.



Roller Type with Flare Cut-off Groove.



Retractable Locking Reamer.



Enclosed Ball Bearing Feed Mechanism Insures Lasting, Easy Operation.

## IMPERIAL *Hi-Duty*® Adjust-o-matic TUBE CUTTER

For Larger Sizes of Tubing

Quick Slide-to-Size Adjustment

Makes a clean, right angle cut in hard or soft copper, brass, aluminum, thin-wall steel, block tin and lead tubing. Takes all sizes from  $\frac{3}{4}$ " to  $2\frac{1}{4}$ " O.D. ( $\frac{5}{8}$ " to 2" nominal).

Instant adjustment to tubing size. Just push on handle to slide cutting wheel down to tubing size. Cutting wheel is then fed in conventional manner by turning operating handle.

Pressing down release on ratchet mechanism permits cutter to be opened instantly to maximum size.

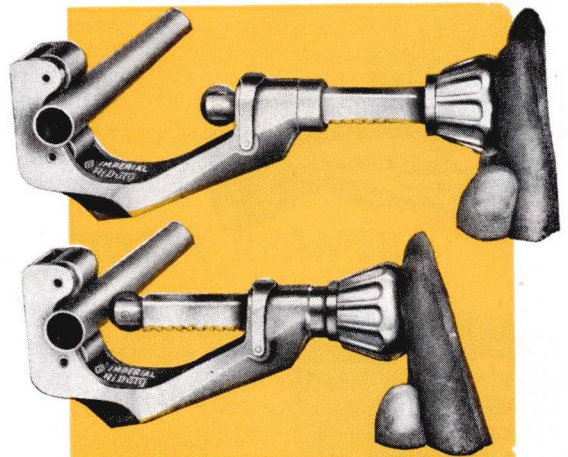
Has enclosed feed mechanism. Threads protected against damage and dirt, assuring lasting, easy operation.

Tube rolls on rollers for easy operation. Large fluted handle for secure grip.

Aluminum alloy body. High strength, light weight, easy to handle.

**No. 206-F Imperial Hi-Duty Adjust-o-matic Tube Cutter.**  
For tubing from  $\frac{3}{4}$ " to  $2\frac{1}{4}$ " O.D. ( $\frac{5}{8}$ " to 2" nominal).  
Overall length closed  $6\frac{3}{8}$ ". Weight 1 lb., 7 oz.

Pat. Nos. D-161,438; 2,787,054; Other Patents Pending



INSTANT ADJUSTMENT TO TUBING SIZE

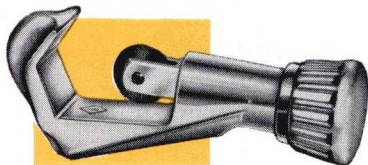
Pushing on handle slides cutting wheel to tubing size. Ratchet release permits cutter to be opened instantly to maximum size.





## IMPERIAL JUNIOR TUBE CUTTER

Pat. No. D-161,438



A smaller sized tube cutter of new, improved, streamlined design. Cuts hard or soft copper, brass, aluminum, thin-wall steel, block tin and lead tubing. Takes all sizes from  $\frac{1}{8}$ " to and including  $\frac{3}{4}$ " inch outside diameter tubing. Makes a quick, clean, right-angle cut without flattening the tube.

The small size—only  $3\frac{1}{2}$ " overall length—makes it a handy tool to carry. Can be used in hard-to-get-at places.

Enclosed feed mechanism protects threads against dirt and damage. Length of tool remains the same regardless of size of tubing being cut.

**No. 227-F Junior Tube Cutter for  $\frac{1}{8}$ " to  $\frac{3}{4}$ " O.D. Tubing.**  
( $\frac{1}{8}$ " to  $\frac{5}{8}$ " nominal). — Wt. 5 oz.

## IMPERIAL COMBINATION TUBE CUTTER AND TUBE CONSTRICTOR



In addition to being a regular No. 274-F Tube Cutter this tool can be readily converted into a tube constrictor by replacing the cutting wheel with the constrictor roller carried in recess under reamer in the body of the cutter.

Sweating a larger tube to a smaller tube (e.g. a capillary tube to  $\frac{1}{4}$ " O.D. tube) is greatly facilitated by the use of this tool.

Simply insert smaller tube about  $\frac{3}{4}$ " into larger tube. Turn down handle of constrictor until roller engages larger tube about  $\frac{1}{2}$ " from end of tube.

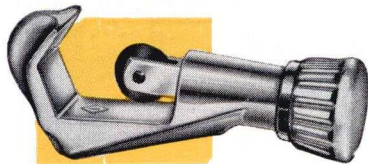
Continue feeding roller into tube until constriction contacts smaller tube as shown in diagram. Joint is now ready for sweating.

**No. 374-F Imperial Hi-Duty Combination Tube Cutter and Constrictor for  $\frac{1}{8}$ " to 1" O.D. Tubing, inclusive.**

Overall length  $4\frac{1}{2}$ ". Weight 6 oz.

## IMPERIAL TUBE CUTTER for Nylon and Other Plastic Tubing

Pat. No. D-161,438



A new tube cutter designed expressly to make quick, clean, square cuts on Nylon tubing, which is difficult to cut by conventional methods. This cutter can also be used for other plastic tubing.

It is only necessary to make one or two revolutions of the cutter on the tubing and the tube is cleanly cut off. The possibility of fracturing tubing in cutting is eliminated.

Cutter wheel is non-rotating and is made of alloy tool steel. When wheel becomes dull at one point, screw is loosened and wheel is turned to a new, sharp edge. This cutter should not be used with metal tubing.

**No. 227-FP Tube Cutter for  $\frac{1}{8}$ " to  $\frac{3}{4}$ " O.D. Tubing. Wt. 5 ozs.**

### Extra Parts for Tube Cutters

No. 32633 Cutting Wheel for 227-F, 274-F, 374-F and former 94-F, 104-F, 127-F, 174-F and 212-F.

No. 60769 Cutting Wheel for 312-F.

No. 33045 Cutting Wheel for 206-F and former 204-F.

No. 68257 Cutting Wheel for 227-FP.

No. 66418 Constrictor Roller for 374-F.

No. 26883 Screw for Cutting Wheel for 227-F, 274-F, 312-F, 374-F and former 94-F, 104-F, 127-F, 174-F and 212-F.

No. 33046 Screw for Cutting Wheel for former 204-F.

No. 61936 Screw for Cutting Wheel for 206-F.

No. 68258 Screw for Cutting Wheel for 227-FP.

No. 60225 Reamer Blade for 274-F, 312-F and 374-F.

No. 97-F Reamer Blade for former 94-F, 174-F and 212-F.

No. 60233 Screw for Reamer Blade for 274-F, 312-F and 374-F.

No. 60232 Spring Washer for Reamer Blade for 274-F, 312-F and 374-F.

No. 31296 Screw for Reamer Blade for former 94-F, 174-F and 212-F.





### IMPERIAL MULTI-USE SAWING VISE

#### Quick Slide-to-Size Clamping

**For Cutting: (1) All Types of Tubing; (2) Wire Braid Pressure Hose**

**For 3/16" to 1-1/2" O.D. Tubing or Hose**

Easily and quickly clamps tubing or hose and holds it securely for making perfect right angle cuts with a standard hacksaw. For use with all kinds of metal tubing, hard or soft temper. Recommended for cutting stainless steel and titanium tubing, as it does not work harden the tubing.

This vise provides an easy way to saw wire braid hose with minimum wear on saw blade.

Quick clamp adjustment. Clamping screw has spiral ratchet mechanism. Pushing on screw slides clamping block down to tubing. Only one turn of thumb screw then clamps tubing securely without marring, crushing or flattening. Ratchet release for spiral ratchet mechanism allows clamp to be pulled up instantly to release tubing.

Vise is made of high tensile strength aluminum alloy, with working parts of steel. Has hardened steel guides for hacksaw. No loose parts to be lost or mislaid. Can be clamped in a vise or fastened to bench.

**No. 384-F Imperial Sawing Vise for 3/16" to 1 1/2" O.D. Tubing.**

Nominal Sizes 1/8" to 1 1/4". Weight 2 1/2 lbs. Size 5" long x 3 1/8" wide x 5 1/8" high (to top of screw with clamp closed).

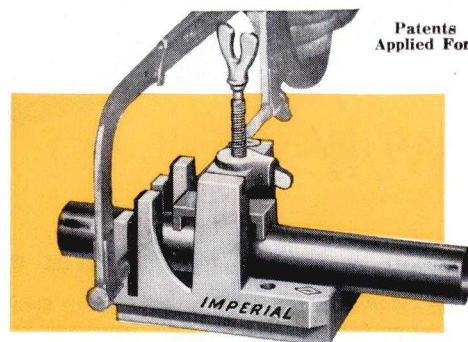


Fig. 1

Push down clamping screw until clamping block contacts tubing (Fig. 1).

To release tubing after making cut, press ratchet release and pull up clamp screw (Fig. 2).

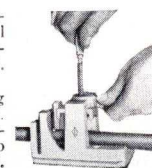


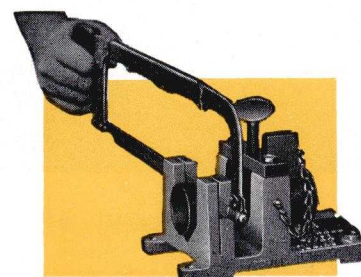
Fig. 2

### IMPERIAL-BEAVER SAWING VISE

Especially serviceable for cutting the larger sizes of pipe and tubing. Vise holds pipe or tubing firmly and provides a guide for a standard hacksaw, thus making possible perfect right angle cuts. Holding pressure is so applied that tubing will not be crushed, marred or flattened. Can be used for hard or soft tubing. Vise has removable steel inserts.

**No. 184-F Sawing Vise for 3/16" to 2 3/8" O.D. Tubing. (1/8" to 2" nominal.)**

Wt. 10 1/2 lbs.



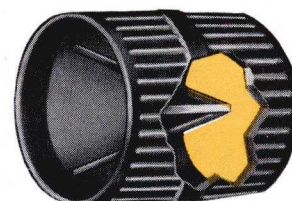
### IMPERIAL INNER AND OUTER REAMER

For reaming both inside and outside edges of copper, brass or aluminum tubing—sizes 3/16" to 1 1/2" O.D. (1/8" to 1 1/4" nominal).

Tubing is introduced from one end of tool for inside reaming, and from the other end for outside reaming. Tool cuts in either direction and is self-centering. Body is fluted for easy handling.

Tool has 3 hardened, hollow ground, tool steel cutters which will give exceptionally long service.

**No. 208-F—Inner and Outer Reamer. — Wt. 5/8 lb.**



Pat. No. 2,242,821



Another Imperial first!

# New hard chrome finished cones

now standard on all Imperial flaring tools!

**NOW**

make **SMOOTHER** flares up to 55% easier

More evidence of Imperial tubing tool design leadership! At no increase in price — Imperial gives you all the dollar-saving, time-saving, tool-saving advantages of industrial hard chrome on all flaring cones in the complete line of Imperial flaring tools. Here's time-

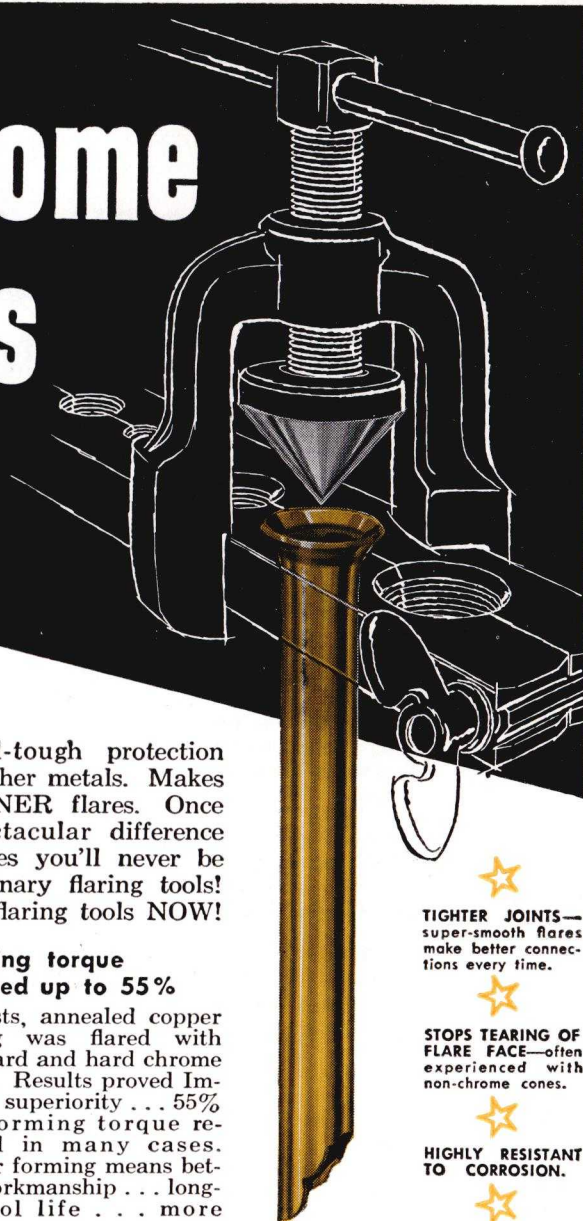
defying, diamond-tough protection that outlasts all other metals. Makes **SMOOTHER, FINER** flares. Once you see the spectacular difference hard chrome makes you'll never be satisfied with ordinary flaring tools! Replace your old flaring tools **NOW!**



## Forming torque reduced up to 55%

In tests, annealed copper tubing was flared with standard and hard chrome cones. Results proved Imperial superiority . . . 55% less forming torque required in many cases. Easier forming means better workmanship . . . longer tool life . . . more profits.

Add this new tool efficiency to your shop. Order Imperial flaring tools from your wholesaler.



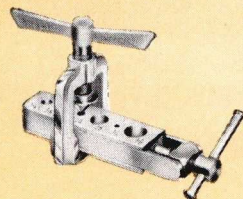
★  
**TIGHTER JOINTS**—super-smooth flares make better connections every time.

★  
**STOPS TEARING OF FLARE FACE**—often experienced with non-chrome cones.

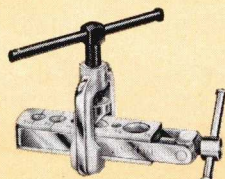
★  
**HIGHLY RESISTANT TO CORROSION.**

★  
**SAVES TOOL DOLLARS**—adds extra service life to cone.

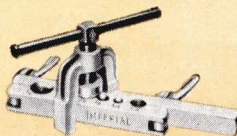
Only Imperial offers you hard chrome cones on all popular flaring tools!



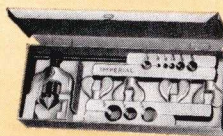
No. 500-F (45°) — No. 507-F (37°)



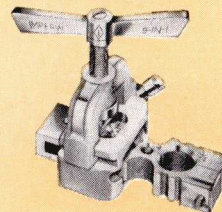
No. 300-F (45°)—No. 437-F (37°)—No. 300-FP (45° for Plastic)



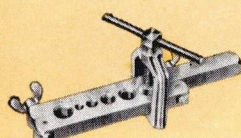
Nos. 193-F, 193-FS, 195-F, 195-FS, 103-FS, 203-FS, (45°)



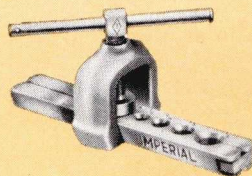
No. 375-FS (45°)



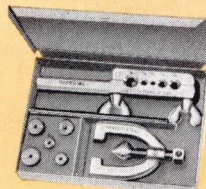
No. 900-F (45°)



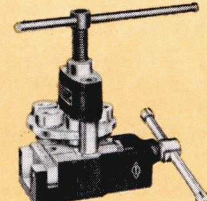
Nos. 93-F, 95-F, 95-FS (45°)



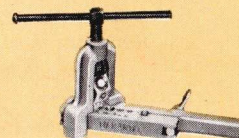
No. 295-FS (45°)



Nos. 93-FB, 195-FB (Double Flaring—45°)



No. 251-F (Double Flaring—45°)—Nos. 256-F, 257-F, (Double Flaring—37°)



No. 193-FB (Double Flaring—45°)





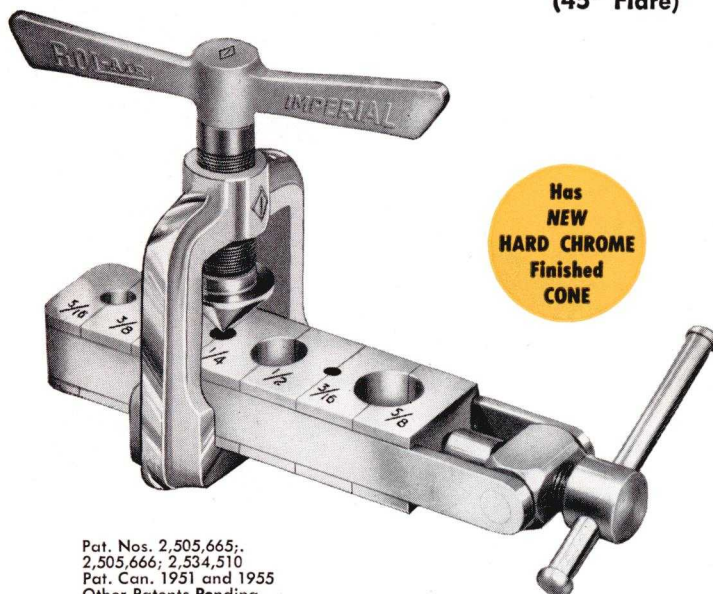
# IMPERIAL TUBING TOOLS

## FLARING (45°)

THE IMPERIAL BRASS MFG. CO.

CHICAGO 31, ILLINOIS

## IMPERIAL No. 500-F *ROL-AIR*\* FLARING TOOL (45° Flare)



Pat. Nos. 2,505,665;  
2,505,666; 2,534,510  
Pat. Can. 1951 and 1955  
Other Patents Pending

Has  
NEW  
HARD CHROME  
Finished  
CONE

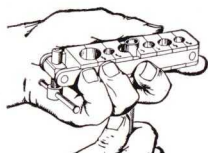
### With Automatic Burnishing Action

ROLLS FLARES IN THE AIR



### NOTE FAST, EASY OPERATION

1



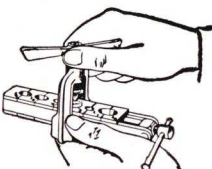
Insert tubing between segments of proper size die block so that it extends approximately  $\frac{1}{4}$ " above face of block.

2



Swing cam action clamp into position against end die and tighten firmly. (New rod handle makes this easier.)

3



Slide yoke over end of die holder and turn feed screw 5 or 6 revolutions after cone contacts tubing. This makes a perfect flare. When backing off the flaring cone, a special mechanism causes automatic burnishing of flare.

Rolls 45° S.A.E. flares in the air and then automatically burnishes them to produce the finest flares we have ever seen. Handles 6 popular sizes of soft copper, aluminum and brass tubing— $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " O.D.

### HAS FACETED FLARING CONE

Super-smooth, multi-faceted flaring cone with tool chrome finish, rolls out the 45° flare above die block.



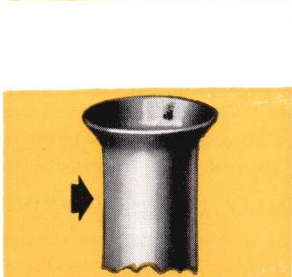
### AUTOMATICALLY BURNISHES FLARES

When backing off cone after flare is made, this tool automatically performs a burnishing action and gives flare a highly polished finish.



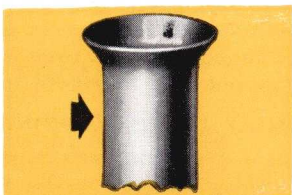
### MAKES STRONGER FLARES

Because flare is not formed against die block, original wall thickness is maintained at base of flare and there is no chance of "washing out" flare. Stronger flares, which stand up far longer under vibration, are assured.



### DOES NOT SCORE THE TUBING

Heat treated, smooth surface dies clamp the tubing without scoring it. A single convenient screw at the end of die holder, with rod handle for leverage, provides easy tightening. Tool has forged steel yoke. Dies can also be used for rerounding and sizing tubing.



**No. 500-F IMPERIAL ROL-AIR FLARING TOOL.** Flares and burnishes  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D. Tubing. ( $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " nominal). Net wt. 1  $\frac{1}{2}$  lbs.

\*T. M. Reg. U.S. Pat. Off.

No. 67861 Yoke Assembly. No. 61851 Bar Assembly.





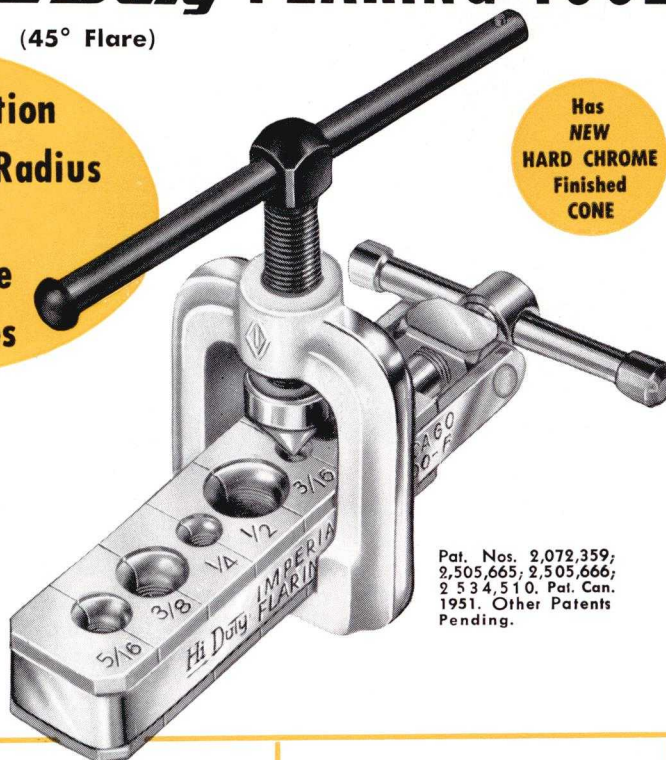
## NEW IMPERIAL *Hi-Duty*® FLARING TOOL

(45° Flare)

NEW

**Chevron Gripping Action**  
**High Strength Flare Radius**  
**Self-Gaging for**  
**Accurate Flare Size**  
**Smoother, Finer Flares**

Has  
**NEW**  
**HARD CHROME**  
**Finished**  
**CONE**



Pat. Nos. 2,072,359;  
 2,505,665; 2,505,666;  
 2,534,510. Pat. Can.  
 1951. Other Patents  
 Pending.

**Try It...and You'll Buy It!**

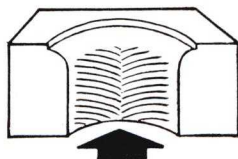
**FAR AHEAD**

of other standard flaring tools in...

- **Quality and Strength of Flares Produced**
- **Ease and Simplicity of Operation**

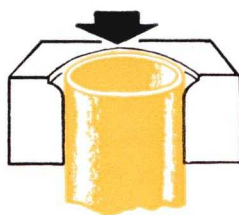
### CHEVRON GRIPPING ACTION

Eliminates any continuous indentations around circumference of tubing that could set up stress points and cause weakness. Scoring and marking of tubing are reduced to a minimum. Provides a positive, non-slip grip on tubing.



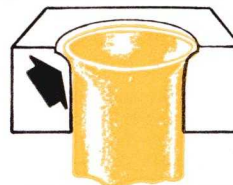
### SELF-GAGING FOR FLARE SIZE

Tubing is inserted in die block so that it is flush with top of die. Recess in die automatically forms a flare with the correct S.A.E. dimensions every time.



### HIGH STRENGTH FLARE RADIUS

Chamfer in each flaring die has a definite radius at intersection with cylindrical portion, instead of a sharp corner. This feature assures stronger flares because every flare is formed with a smooth, even radius at its base. There can be no undercutting of flare. Original wall thickness of tubing is maintained at base of flare.



### HARD CHROME FINISHED CONE

Makes smoother, finer flares in soft copper, aluminum and brass tubing. Reduces amount of torque required for flaring and adds extra service life to cone. Swivel type cone adds to ease of operation.

### SINGLE LEVER CLAMPING

Has a die holder with heat treated, sliding dies for clamping tubing. Provides the quickest, easiest, simplest method of clamping tubing offered in any standard flaring tool. A single convenient screw at end of die holder, with rod handle for leverage, provides easy tightening.

### DURABLE CHROME-NICKEL FINISH

Assures long lasting protection against corrosion and rust. Provides outstanding appearance.

### No. 300-F IMPERIAL HI-DUTY FLARING TOOL

Flares  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ", and  $\frac{5}{8}$ " O.D.  
 Tubing ( $\frac{1}{8}$ "  $\frac{1}{4}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " nominal) Net Wt.  
 1 $\frac{5}{8}$  lbs.

### EXTRA PARTS

- No. 39859 Yoke Assembly.
- No. 68752 Die Holder Assembly.
- No. 32532 Compressor Cone for former model No. 300-F having threaded cone.





## IMPERIAL FLARING TOOLS With SLIP-ON YOKE (45° Flare)

Pat. Nos. 1,724,697, 2,072,359, 2,278,932, 2,553,813.  
Pat. Canada 1943 and 1953, Other Patents Pending.

The quick slip-on yoke of this flaring tool provides exceptional ease and speed of operation. Tool gives the proper 45° flare to soft copper, brass or aluminum tubing to make up tight S.A.E. flare joints.

*Features which make this tool outstanding are:*

- ★ Yoke slips straight down over top of bar (Fig. 1), then locks into position with a slight turn (Fig. 2).
- ★ Yoke can be removed after flaring without backing up compressor screw more than a fraction of a turn.
- ★ Bottom construction of yoke permits flares to be made where there is little space between nut and the end of tubing—such as on a short bend or on finned tubing in refrigeration work.
- ★ Positive grip of tubing in bar by means of special non-slip feature.

Yokes are made of forged steel. Furnished either with cone which rotates with the screw or with swivel cone. The latter type remains stationary while screw is turned.

**No. 193-F**—Flares  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{7}{16}$ " and  $\frac{1}{2}$ " O.D. tubing. (Nominal sizes  $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ "). Wt.  $1\frac{1}{2}$  lbs.

**No. 193-FS**—Same as 193-F, except with Swivel Cone.

**No. 195-F**—Flares  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D. tubing. (Nominal sizes  $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ "). Wt.  $1\frac{1}{2}$  lbs.

**No. 195-FS**—Same as 195-F, except with Swivel Cone.

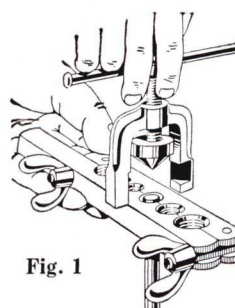
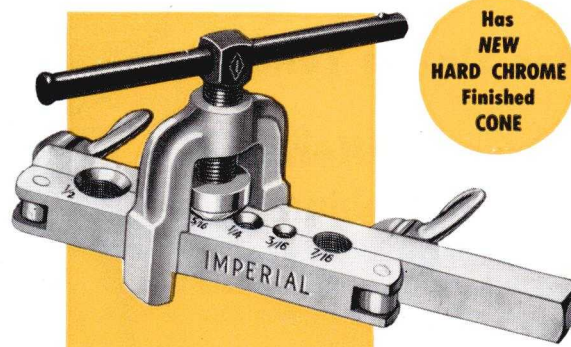


Fig. 1

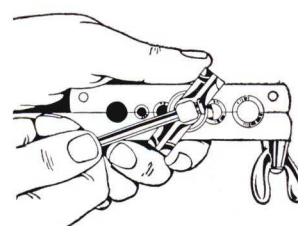


Fig. 2

## IMPERIAL FLARING TOOLS (45° Flare)

Pat. Nos. 1,724,697; 2,072,359; 2,553,813; Pat. Canada 1953,  
Other Patents Pending

Flares soft copper, brass or aluminum tubing to make up S.A.E. 45° flare joints without cracking or splitting.

With the S.A.E. flared coupling a proper flare of the tubing is necessary to prevent leakage. These tools quickly give the proper flare and taper to tubing from  $\frac{3}{16}$ " to and including  $\frac{5}{8}$ " outside diameter. Tubing can be clamped, flared and removed in less than 30 seconds. Positive grip of tubing in bar by means of special non-slip feature.

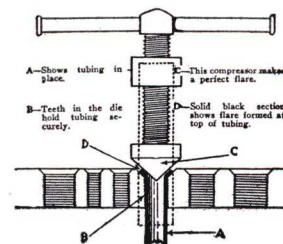
Yokes are made of steel forgings. No. 95-F type is furnished either with cone which rotates with the screw or with swivel cone. The latter remains stationary while screw is turned.

**No. 93-F**—Flares  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{7}{16}$ " and  $\frac{1}{2}$ " Outside Diameter Tubing. (Nominal sizes  $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ "). Wt. approx.  $1\frac{1}{2}$  lbs.

**No. 95-F**—Flares  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " Outside Diameter Tubing. (Nominal sizes  $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ "). Wt. approx.  $1\frac{1}{2}$  lbs.

**No. 95-FS**—Same as above except with swivel cone. Wt. approx.  $1\frac{1}{2}$  lbs.

Has  
NEW  
HARD CHROME  
Finished  
CONE



## REPLACEMENT PARTS FOR ABOVE FLARING TOOLS

Part No.	Description
No. 36273	Yoke assembly for 193-F and 195-F
No. 37369	Yoke assembly for 193-FS and 195-FS
No. 33465	Yoke assembly for 93-F and 95-F
No. 61459	Yoke assembly for 95-FS and former 93-FS
No. 36277	Bar assembly for 193-F and 193-FS
No. 36279	Bar assembly for 195-F and 195-FS
No. 30077	Bar assembly for 93-F and former 93-FS
No. 30231	Bar assembly for 95-F and 95-FS
No. 38584	Wing Nut

Part No.	Description
No. 25384	Compressor Cone for 193-F, 195-F, 93-F, 95-F
No. 32532	Compressor Cone for 95-FS, 193-FS, 195-FS, 295-FS and 93-FS with threaded cone
No. 30009	Rivet for 93-F, 95-F, 95-FS, 193-F, 193-FS, 195-F and 195-FS
No. 36849	Bolt for open end of bar (6-sided)—93-F, 95-F, 95-FS, 193-F, 193-FS, 195-F and 195-FS
No. 36850	Bolt for pivot end of bar (4-sided)—93-F, 95-F, 95-FS, 193-F, 193-FS, 195-F and 195-FS





## IMPERIAL WIDE-RANGE FLARING TOOL

(45° Flare)

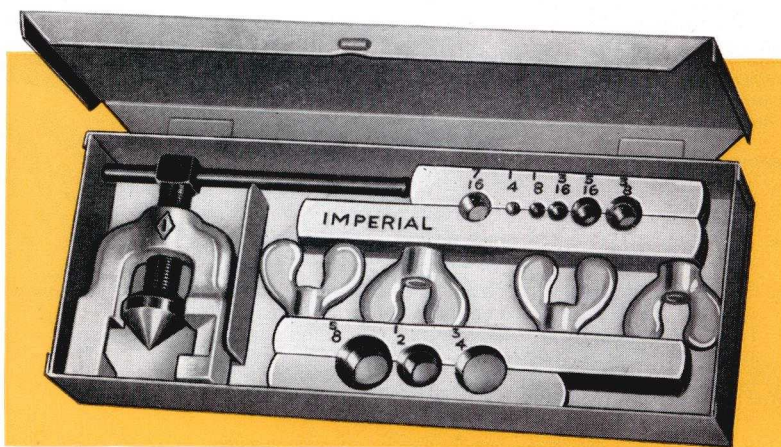
For All Sizes of Tubing from 1/8" to 3/4" O.D.

Pat. Nos. 1,724,697; 2,072,359; 2,278,932 Pat. Canada 1943 and 1953

**Has Slip-on Yoke**

**Flares 9 Different Sizes of Tubing**

Has  
NEW  
HARD CHROME  
Finished  
CONE



With this one flaring tool you can flare 9 different sizes of soft copper, brass or aluminum tubing. Tool consists of two flaring bars and one yoke. One bar flares 1/8", 3/16", 1/4", 5/16", 3/8" and 7/16" O.D. sizes. Other bar flares 1/2", 5/8" and 3/4" O.D. sizes. This eliminates the need for having several tools to cover a complete size range. Tool is small, compact and easy to work with.

Yoke is made of forged steel, is self-centering and has latest type slip-on feature. Inside edges of yoke are slotted so that once in position a slight turn holds it in place. Has swivel cone which makes operation easier.

Positive grip of tubing in bar by means of special non-slip feature.

**No. 375-FS**—For 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8" and 3/4" O.D. tubing. (1/8", 1/4", 3/8", 1/2", 5/8" nominal). Complete in metal kit. Wt. approx. 4 3/4 lbs.

**No. 376-FS**—For 1/2", 5/8" and 3/4" O.D. tubing. Wt. 2 lbs.

### EXTRA PARTS

**No. 38766**—Flaring Bar for 1/8", 3/16", 1/4", 5/16", 3/8" and 7/16" O.D. tubing.

**No. 38767**—Flaring Bar for 1/2", 5/8" and 3/4" O.D. tubing.

**No. 38769**—Yoke Assembly for No. 375-FS and 376-FS.

**No. 32640**—Compressor Cone for No. 375-FS and 376-FS with threaded cone.

**No. 38584**—Wing Nut for No. 375-FS.

**No. 36849**—Bolt for No. 375-FS.

**No. 36850**—Bolt for No. 375-FS.

### EXTRA PARTS FOR FORMER No. 175-F

**No. 32638**—Yoke Assembly.

**No. 32640**—Compressor Cone.

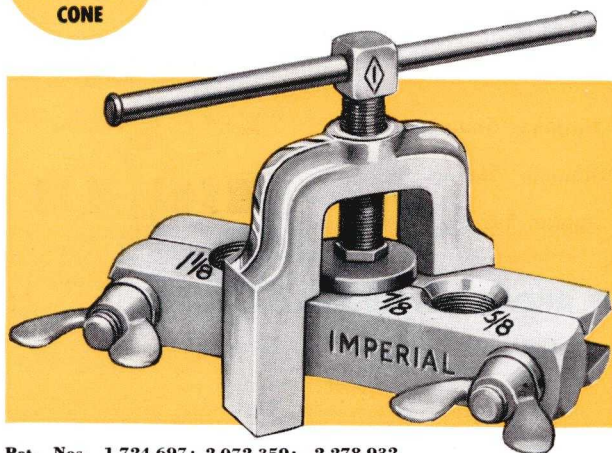
**No. 38584**—Wing Nut.

## IMPERIAL FLARING TOOLS

(45° Flare)

**For Larger Sizes of Tubing**

Has  
NEW  
HARD CHROME  
Finished  
CONE



Pat. Nos. 1,724,697; 2,072,359; 2,278,932  
Pat. Canada 1943 and 1953

Flaring larger sizes of tubing for S.A.E. flared joints is made extremely simple by these heavy-duty flaring tools. Ideal for maintenance and plumbing work, large tubing jobs on diesels and other applications where larger sizes of tubing are involved.

Two sizes available. No. 203-FS flares 5/8", 7/8" and 1 1/8" O.D. Tubing; No. 103-FS flares 3/4", 7/8" and 1" O.D.

Tools have latest type quick slip-on yoke which can be slipped over the bar without twisting or turning. Inside edges of yoke are slotted so that once in position, a slight turn holds it in place. Positive grip of tubing in bar by means of special non-slip feature.

Yoke has swivel cone which remains stationary when screw is turned—an important aid to easier operation when working with large sizes of tubing.

**No. 203-FS**—Flares 5/8", 7/8" and 1 1/8" O.D. Tubing. (Nominal sizes 1/2", 3/4" and 1"). Wt. 3 3/4 lbs.

**No. 103-FS**—Flares 3/4", 7/8" and 1" O.D. Tubing. (Nominal sizes 5/8" and 3/4"). Wt. 3 3/4 lbs.

### Extra Parts for No. 203-FS and No. 103-FS

**No. 38903**—Yoke Assembly for 203-FS and 103-FS.

**No. 38904**—Compressor Cone only for 203-FS and 103-FS.

**No. 60515**—Bar Assembly for 203-FS.

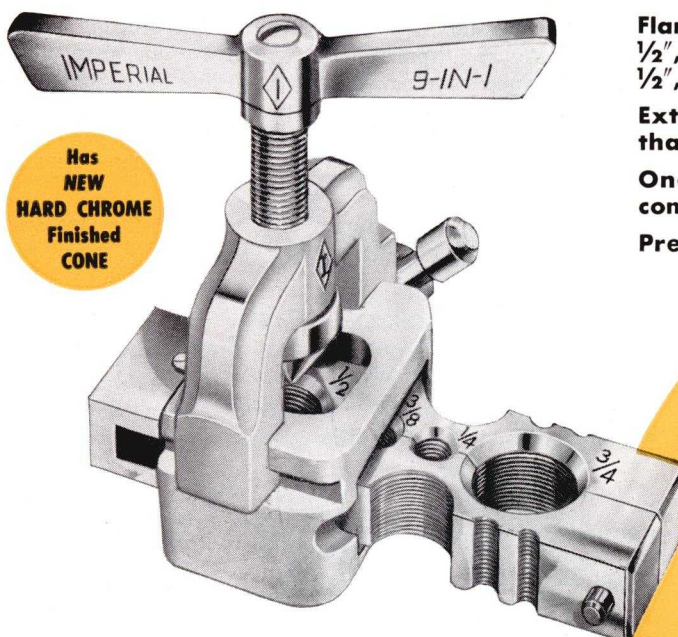
**No. 38905**—Bar Assembly for 103-FS.

**No. 28359**—Wing Nut for 203-FS and 103-FS.





## IMPERIAL **9-in-1** FLARING TOOL (45° FLARE)



Has  
**NEW**  
**HARD CHROME**  
Finished  
**CONE**

**NEW ALL-CHROME FINISHED MODEL . . . with polished highlights on yoke and polished bar.**

**Flares 9 Sizes— $\frac{1}{8}$ ",  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{7}{16}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ ",  $\frac{3}{4}$ " O.D. (Nom. Sizes  $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ ")**

**Extremely Compact—Far more compact than any other wide-range flaring tool**

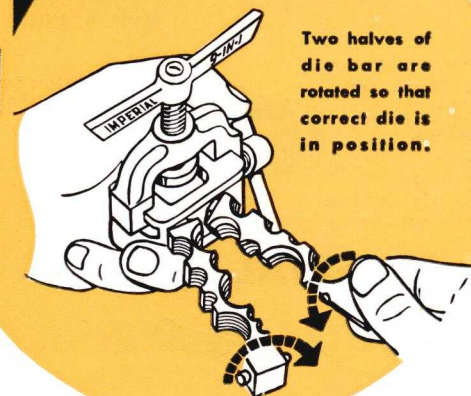
**One Piece Construction. Yoke and bar are combined in one compact assembly**

**Precision Gage Assures Proper Size of Flare**

### ROTATING DIE BAR

**Combines Wide Range with Compactness**

Two halves of die bar are rotated so that correct die is in position.



**COVERS WIDE SIZE RANGE.** Flares 9 sizes of tubing using a single flaring die bar. Makes accurate 45° SAE flares on soft copper, aluminum and brass tubing.

**SIZES PLAINLY MARKED.** Split die bar rotates at hinged end so that two separate sets of clamping dies can be used. All tube sizes clearly marked in top and bottom of hardened steel die bar, and filled with black to provide easy reading.

**MAKES CORRECT FLARE EVERY TIME.** Tubing is placed in flaring bar so that it contacts cross piece of clamping mechanism. Proper size of flare is then automatically obtained by the various depths of chamfers in bar. Tube holding pressure is applied opposite center of clamping dies. Non-slip feature maintains positive grip on tubing.

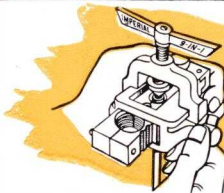
**HAS HARD CHROME FINISHED CONE.** This feature, combined with the swivel type flaring cone, reduces torque required and produces a highly finished flare face that assures tighter joints. Full floating compressor screw and cone design assures accurate centering on flares — no chance of misalignment.

**No. 900-F 9-in-1 Flaring Tool.**

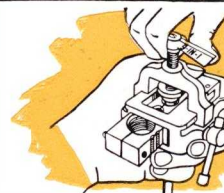
Weight 1 lb., 13 oz.



Tubing is inserted until it contacts gage assuring proper size of flare.



Tubing is clamped in position by turning lever handle on side of tool.



Floating cone is centered over tubing, and flare is made.





Has  
NEW  
HARD CHROME  
Finished  
CONE

## IMPERIAL Self-Clamping FLARING TOOL

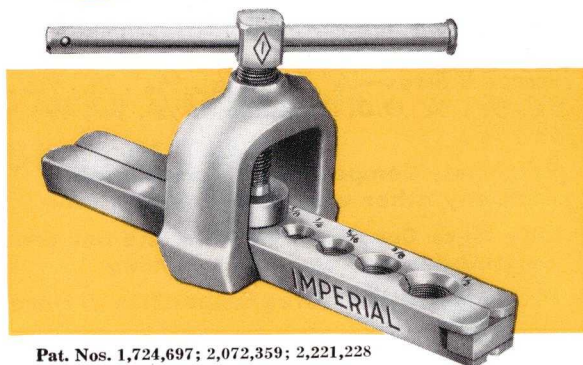
(45° Flare)

This easy operating flaring tool gives the proper 45° flare to soft copper, brass or aluminum tubing to make up tight S.A.E. flare joints without cracking or splitting the tubing.

An outstanding self-clamping feature of this tool makes it easier and faster to operate. To clamp tubing, it is only necessary to spread bar at its free end and place tubing in proper opening, close bar and slide forged steel yoke onto it. Bar is beveled on two outside edges, and yoke is tapered on each side to match. The tapered yoke automatically clamps bar to hold tubing in place—there are no nuts or other devices to be tightened.

Tool has swivel type flaring cone which makes operation easier, especially when working with larger sizes of tubing.

**No. 295-F5—Self-Clamping Flaring Tool for  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D. Tubing. ( $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " nominal). Wt. approx. 1  $\frac{3}{4}$  lbs.**



Pat. Nos. 1,724,697; 2,072,359; 2,221,228

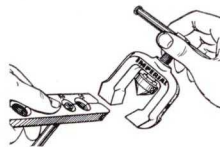
Extra Parts  
No. 37677 Yoke Assembly.  
No. 32532 Compressor Cone for models with threaded cone.  
No. 61293 Bar only.

### JUST 3 SIMPLE STEPS TO MAKE A FLARE

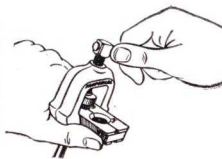
1. Spread bar and insert tubing in proper opening.



2. Close bar and slide yoke onto hinged end of bar.



3. Center spreader cone over tubing and turn compressor screw down firmly. The result—A PERFECT 45° flare.



## IMPERIAL FLARING TOOL FOR NYLON TUBING

**Makes 45° Flares for Tight Joints with Nylon Tubing**

**Flares 6 Sizes of Tubing— $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D.**

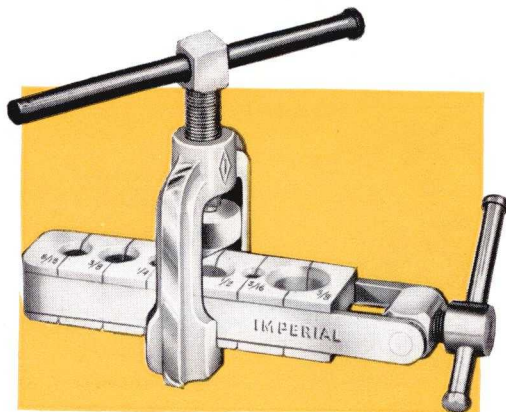
**Compact, Easy to Use**

Here for the first time is a hand operated flaring tool available for making 45° flares in Nylon tubing, for use in making flared fitting joints. Tool flares  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D. tubing.

Because of the resiliency of Nylon, tubing is flared to a wide angle and when removed from tool springs back to the correct 45° flare angle.

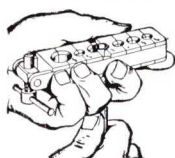
Tool has a die holder with sliding dies for clamping the tubing. Has one screw at end for quick tightening. Yoke of this tool slides over end of die holder into position over tubing to be flared. Illustrations show how easily and quickly a flare is made.

**No. 300-FP Imperial Flaring Tool for Nylon Tubing. Flares  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D. tubing. Wt. 1  $\frac{3}{8}$  lbs.**



Has  
NEW  
HARD CHROME  
Finished  
CONE

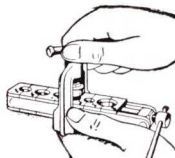
### The Easy Way to Flare Nylon Tubing



1. Tubing is inserted in proper opening of die block.



2. Cam action clamp is swung into position against end die, screw tightened.



3. Yoke is slipped over end of die block and tubing is flared.





## IMPERIAL FLARING AND SWAGING TOOL (45° Flare)

Has  
NEW  
HARD CHROME  
Finished  
CONE

Pat. Nos. 1,724,697; 2,072,359; 2,278,932; 2,493,127; 2,553,813  
Pat. Canada 1943 and 1953, Other Patents Pending

A tool that will either flare or swage soft copper, brass or aluminum tubing by changing a few simple adapters. Flares sizes of  $\frac{1}{8}$ ",  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{7}{16}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " and  $\frac{3}{4}$ " O.D. Swages sizes of  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " and  $\frac{3}{4}$ " O.D. ( $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " nominal). Will swage tubing even in close quarters where it is impossible to use a punch type tool.

Yoke is made of forged steel, is self-centering and has lat-type slip-on feature. Inside edges of yoke are slotted so that once in position a slight turn holds it in place. Parts include two bars to cover a wide range of sizes, yoke, adapters for swaging, and spreader cone for flaring. Swaging adapters and spreader cone work on a swivel, making operation exceptionally easy.

**No. 275-FS—Imperial Flaring and Swaging Tool, complete with flaring cone and 4 swage adapters. Furnished in steel kit.**

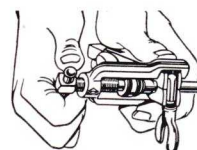
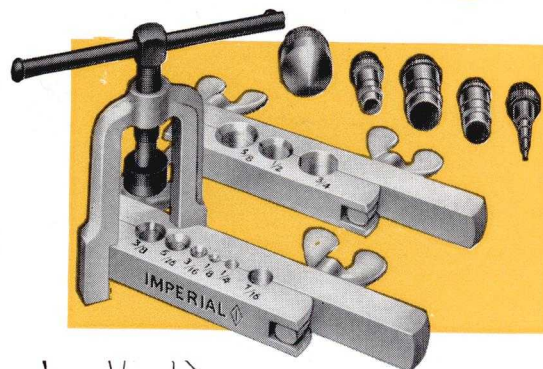
Wt. approx.  $3\frac{1}{2}$  lbs.

**No. 276-FS—Tool and Flaring Cone only.**

Wt. approx.  $3\frac{1}{4}$  lbs.

**No. 278-FS—Individual adapters.**

(Specify size. The small adapter swages  $\frac{3}{16}$ ",  $\frac{1}{4}$ ", and  $\frac{3}{8}$ " O.D. Tubing. One adapter for each other size. Wt. approx.  $\frac{3}{4}$  oz.)



Will swage tubing even in close quarters where it is impossible to use a punch type tool.

### EXTRA PARTS

**No. 38593—Yoke Assembly for 275-FS and 276-FS** (Does not include compressor cone or adapters)

**No. 38600—Compressor cone for 275-FS and 276-FS.**

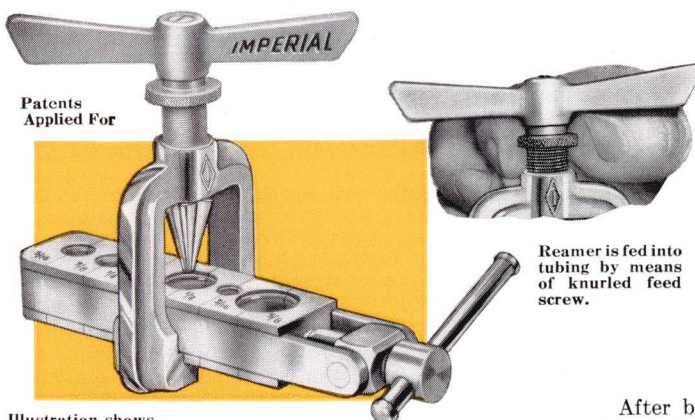
**No. 38766—Bar for  $\frac{1}{8}$ ",  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{7}{16}$ " O.D.**

**No. 38767—Bar for  $\frac{1}{2}$ ",  $\frac{5}{8}$ " and  $\frac{3}{4}$ " O.D. tubing.**

**No. 38584—Wing Nut.**

## IMPERIAL REAMING AND DEBURRING TOOLS

### With Precision Feed Control



Patents  
Applied For

Reamer is fed into tubing by means of knurled feed screw.

Illustration shows Reaming Yoke on bar. Order bar separately.

For removing inner burrs on all kinds of tubing, including steel and stainless steel. There is no finer tool for preparing tubing for perfect flares.

Especially adapted for hydraulic, aviation and other exacting tubing connection work. Designed to prepare tubing in conformity with J.I.C. standards for hydraulic installations.

Reamer made of hardened tool steel with tapered cutters ground sharp to precise cutting angles. Knurled-head feed screw has fine threads for sensitive control of feeding action. Forged steel yoke is self-centering.

After burr is removed, tubing can be repositioned and flared in same bar by substituting flaring yoke for the reaming yoke.

### Bars Only

**No. 61984 Deburring and Flaring Bar only** (as furnished with No. 437-F Flaring Tool). For use with No. 438-F Reamer listed at right. Wt. 15 oz.

**No. 61826 Deburring and Flaring Bar only.** For use with No. 401-F Reamer listed at right. For  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " O.D. Tubing. Wt. 1 lb., 6 oz.

### Reaming Yokes Only

**No. 438-F Reaming Yoke only.** (Does not include bar.) For  $\frac{1}{4}$ " to  $\frac{5}{8}$ " O.D. tubing. Can be used with flaring bars furnished with Imperial Flaring Tools No. 437-F, No. 500-F, No. 300-F or No. 355-F. Wt.  $\frac{5}{8}$  lb.

**No. 401-F Reaming Yoke only.** (Does not include bar.) For  $\frac{1}{4}$ " to  $\frac{5}{8}$ " O.D. tubing. For use with No. 400-F Flaring Tool Bar. (No. 61826). Wt. 9 oz.





# IMPERIAL Multi-Size 45° DOUBLE-FLARING TOOL

Has NEW HARD CHROME Finished CONE

**For Soft Steel,  
Copper and  
Aluminum  
Tubing**

*Epecially Recommended  
for  
BUNDY and GM  
or other brazed  
or welded steel tubing*

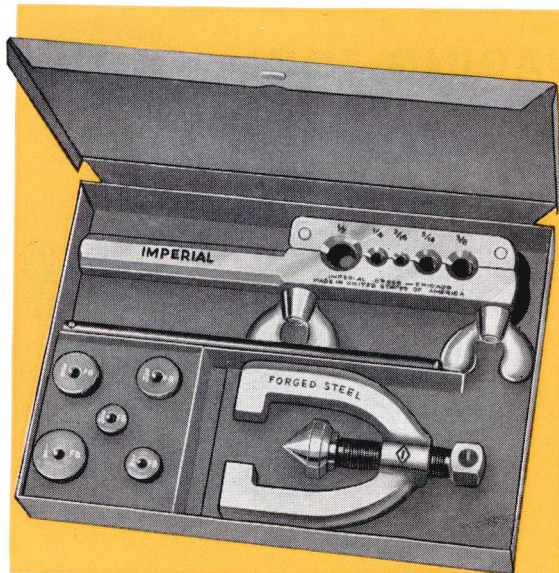
Provides a simplified method of making 45° double flares on  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " O.D. thin-wall soft steel tubing (such as Bundy), having not over .035" wall. Can be used also for making single or double flares on soft copper or aluminum tubing.

The tendency of welded and brazed steel tubing to crack when flared with the ordinary single-flaring tool is overcome by this tool because it folds back end of tube to make a flare with double thick, double strength walls. It can be used with seamless, butt-welded or lap-seam-brazed soft steel tubing having not over .035" wall. Tool first bells tubing, using adapter as shown in Fig. 1, then completes flare in same manner as a conventional flaring tool, Fig. 2.

The double flare also offers special advantages for copper and aluminum tubing when joints are to be reconnected frequently.

Tool is small—convenient to work with—can be used right on the job. Has forged steel yoke and swivel type flaring cone. Positive grip of tubing in bar by means of special non-slip feature. Net wt. approx. 3 lbs. Complete in metal kit.

**No. 93-FB—For  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " O.D. tubing.**



Pat. Nos. 1,724,697; 2,072,359; 2,370,089; 2,553,813; Pat. Canada 1953; Other Patents Pending

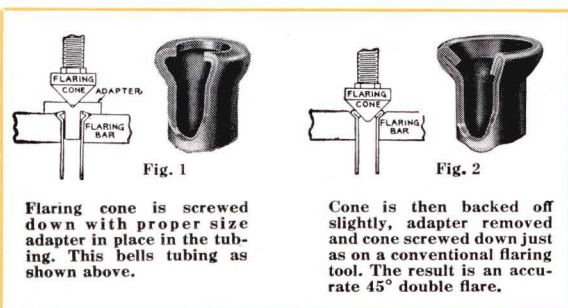


Fig. 1

Fig. 2

Flaring cone is screwed down with proper size adapter in place in the tubing. This bells tubing as shown above.

Cone is then backed off slightly, adapter removed and cone screwed down just as on a conventional flaring tool. The result is an accurate 45° double flare.

## Extra Parts

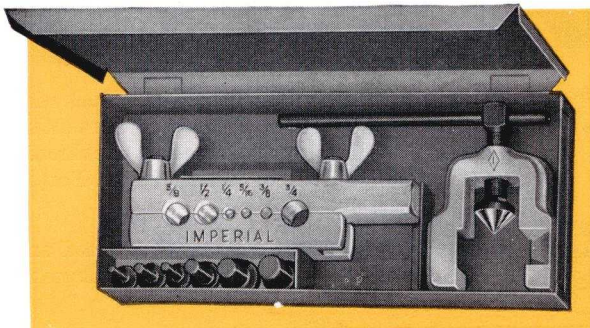
No.  
32638—Yoke Assembly  
38381—Bar Assembly  
38388— $\frac{1}{16}$ " Adapter  
68012— $\frac{1}{4}$ " Adapter  
68013— $\frac{5}{16}$ " Adapter  
68014— $\frac{3}{8}$ " Adapter

No.  
68015— $\frac{1}{2}$ " Adapter  
32640—Compressor Cone  
38584—Wing Nut  
36849—Bolt  
36850—Bolt

# IMPERIAL DOUBLE-FLARING TOOL

**For Automobile Air Conditioning Systems**

Has NEW HARD CHROME Finished CONE



Pat. Nos. 1,724,697-2,072,359-2,370,089—Pat. Can. 1953, Other Patents Pending

A double-flaring tool especially designed to handle the tubing size range encountered in servicing automobile air conditioning systems. This tool folds over the end of soft copper or aluminum tubing to make a flare with double-thick, double-strength walls. (See illustrations above showing forming of double flare.) Flares  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " and  $\frac{3}{4}$ " O.D. tubing having not over .035" wall.

It has been found that the double flare consistently assures tighter joints and greater vibration resistance on units that are put to severe service. The double flare also offers many advantages when joints are to be reconnected frequently. For example, it will withstand greater wrench torque without danger of "washing out" the flare. The Society of Automotive Engineers (S.A.E.) is considering standardization of the double flare for copper tubing lines on automobile air conditioning systems and refrigeration systems on trucks and trailers.

Yoke of tool is made of forged steel. Has swivel type flaring cone.

**No. 195-FB Imperial Double-Flaring Tool for  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " and  $\frac{3}{4}$ " O.D. tubing. Weight  $5\frac{1}{2}$  lbs.**

No.  
64250—Yoke Assembly  
64253—Bar Assembly  
64252—Compressor Cone  
68012— $\frac{1}{4}$ " Adapter  
68013— $\frac{5}{16}$ " Adapter  
68014— $\frac{3}{8}$ " Adapter

## Extra Parts

No.  
68015— $\frac{1}{2}$ " Adapter  
68016— $\frac{5}{8}$ " Adapter  
68017— $\frac{3}{4}$ " Adapter  
28359—Wing Nut  
38586—Bolt  
28357—Bolt





## IMPERIAL 45° DOUBLE-FLARING TOOL

*For Making Precision Double Flares*

**Provides Positive, Accurate Control of Flare Size**

**Flares 5 Sizes of Tubing**

**Prevents Cracking or Splitting of Tubing**

Makes accurate 45° S.A.E. double lap flares on soft steel tubing (such as Bundy). Can also be used for making single or double flares on soft copper or aluminum tubing. Flares  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " O.D. Tubing.

### Controlled Accuracy

Adapters for first forming operation serve as a positive gage for positioning tubing in die block. Adapters always line up properly with tubing. Thus the correct size flare, true with axis of tubing, is assured every time.

### Safe Flares for Seamed Tubing

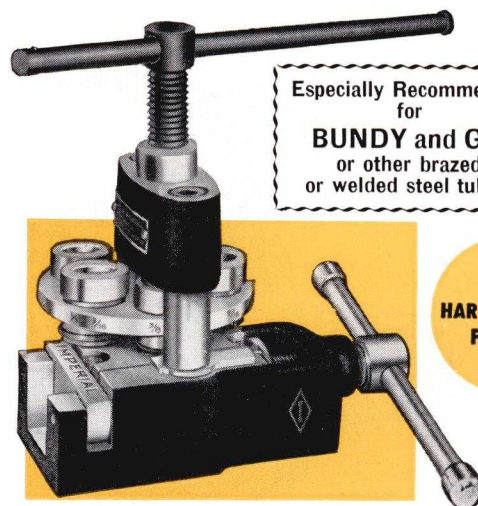
A double lap flare is the only type which is consistently successful for seamed steel tubing. Tool prevents cracking or splitting of tubing because it folds over end to make flare with double-thick, double-strength walls. Can be used with seamless, butt-welded or lap-seam-brazed soft steel tubing having not over .040" wall. The double-flare also offers many advantages on copper or aluminum tubing when joints are to be reconnected frequently.

### Compact, Light Weight, Hand Operated

Tool is completely integrated and has no extra parts to be lost. Designed for easy hand operation on the job or in the shop. Adapters for various sizes revolve into position and make changing from one size to another simple and quick.

**No. 251-F Imperial Double-Flaring Tool for  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ", and  $\frac{1}{2}$ " O.D. tubing. Wt. 2  $\frac{1}{2}$  lbs.**

Extra Parts  
No. 63587—Pair of Die Blocks.



Especially Recommended for  
**BUNDY and GM**  
or other brazed  
or welded steel tubing

Has  
**NEW**  
**HARD CHROME**  
**Finished**  
**CONE**

Patents Applied For



First operation, using adapter, bells tubing as shown at left.



In second operation, flare is completed as shown at right.

## IMPERIAL 45° Turret-Type DOUBLE-FLARING TOOL

**Simple, 2-Piece Construction**

**No Separate Parts to Lose**

**Assures an Accurate Double Flare Every Time**

Assures accurate 45° double flares every time on soft steel tubing (such as Bundy or GM). Also makes single or double flares on soft copper or aluminum tubing. Flares sizes of  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " O.D. tubing.

### Revolving Turret Speeds Operation

Because forming dies and flaring cone are embodied in a revolving turret, they can be turned into position for operation in an instant.

### 2-Piece Construction

Slip-on yoke and bar make operation fast and simple. There can be no delay and annoyance of lost and mislaid adapters.

### Gages Flare Size

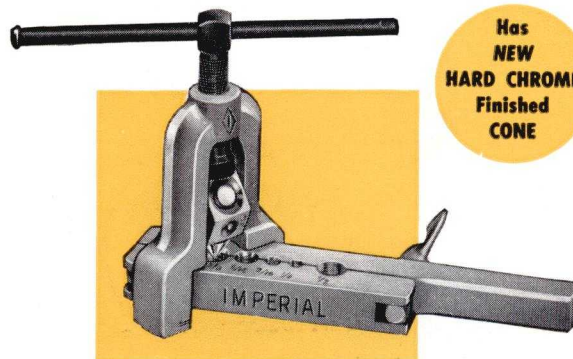
Convenient gage lines on yoke show height to which tubing should be inserted in bar. Accurate flare size is assured.

### Safe Flares for Seamed Tubing

Tool prevents cracking or splitting of seamed steel tubing (such as Bundy or GM) when flaring, because its turret head folds back the end to make a flare with double-thick, double-strength walls. The double flare offers greater vibration resistance when used on copper and aluminum tubing. It also provides many advantages when joints are to be reconnected frequently. Can be used with seamless, butt-welded or lap-seam-brazed tubing having not over .035" wall.

**No. 193-FB Imperial Turret-Type Double-Flaring Tool for  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " O.D. tubing. Wt. 3 lbs.**

EXTRA PARTS  
No. 60996—Yoke Assembly No. 60997—Bar Assembly



Has  
**NEW**  
**HARD CHROME**  
**Finished**  
**CONE**

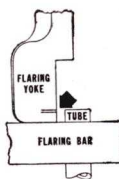


Fig. 1. Gage lines on yoke show height at which tube should be inserted in bar. (Use upper line for sizes  $\frac{1}{4}$ " and larger, lower line for sizes  $\frac{3}{16}$ " and smaller.)



Fig. 2. Turret is revolved until proper size forming die is in place and screwed down until face of turret contacts bar. This bells tubing as shown.



Fig. 3. Screw is backed up and turret revolved until flaring cone is in position and then turned down again. This completes the 45° double flare as shown.

Pat. Nos. 2,662,574; 2,278,932. Pat. Can. 1943





## IMPERIAL 37° FLARING TOOLS

For Flaring Soft Steel Tubing to J.I.C. Standards. Also for Making 37° Flares on Copper, Aluminum, and Fully Annealed Stainless Steel Tubing



Has  
NEW  
HARD CHROME  
Finished  
CONE

Pat. Nos. 2,072,359;  
2,505,665; 2,505,666;  
2,534,510. Pat. Canada 1951. Other Patents Pending.

### No. 437-F—Flares 6 Sizes 3/16", 1/4", 5/16", 3/8", 1/2", 5/8" O.D.

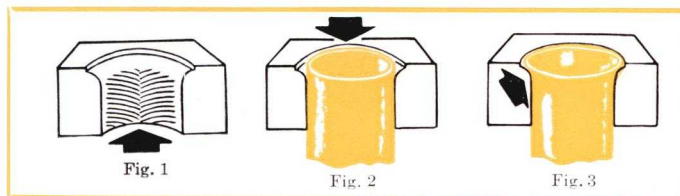
**CHEVRON GRIPPING ACTION** eliminates any continuous indentations around circumference of tubing that could set up stress points and cause weakness. Provides a positive, non-slip grip on tubing. (Fig. 1.)

**SELF-GAGING FOR FLARE SIZE.** Tubing is inserted in die block so that it is flush with top of die. Recess in die automatically forms a flare with the correct S.A.E. dimensions every time. (Fig. 2.)

**HIGH STRENGTH FLARE RADIUS.** Chamfer in each flaring die has a definite radius at intersection with cylindrical portion, instead of a sharp corner. Assures stronger flares because every flare is formed with a smooth, even radius at its base. (Fig. 3.)

**SINGLE LEVER CLAMPING.** Has a die holder with heat treated, sliding dies for clamping tubing. A single convenient screw at end of die holder, with rod handle for leverage, provides easy tightening. Has swivel type flaring cone. Tool has chrome-nickel finish.

**No. 437-F IMPERIAL 37° HI-DUTY FLARING TOOL.** Flares 3/16", 1/4", 5/16", 3/8", 1/2", and 5/8" O.D. Tubing. Net Wt. 1 lb., 11 oz.



#### EXTRA PARTS

- No. 61982 Yoke Assembly.
- No. 61984 Die Holder Assembly.
- No. 61983 Compressor Cone for former model No. 437-F having threaded cone.

### No. 537-F—Flares 3/4", 7/8", 1", 1 1/4" O.D. No. 637-F—Flares 1 1/2", 1 3/4", 2" O.D.

**ROLLER ACTION MAKES FLARING EASIER.** 37° Flares are rolled out in the air above die block by means of three rollers in spreader cone. These rollers reduce amount of torque required, an important advantage in flaring large sizes of tubing. Hexagon head on stem provides for easy wrench operation.

**BURNISHES FLARES.** When cone is backed off after flare is made, feed is disengaged during first revolution, causing three rollers to perform a burnishing action and give flare a smooth finish, assuring tighter joints.

**MAKES STRONGER FLARES.** Because flare is not formed against die block, original wall thickness is maintained at base of flare. Stronger flares which stand up far longer under vibration are assured.

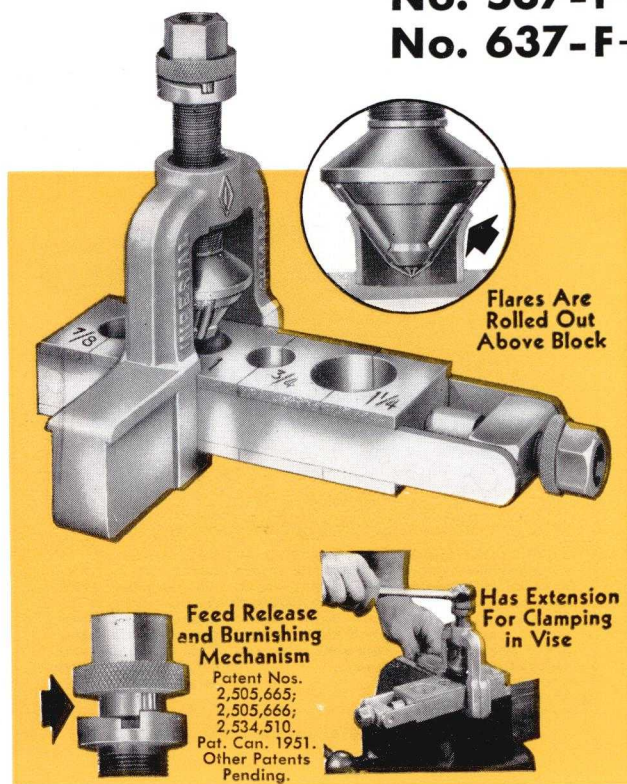
**DOES NOT SCORE THE TUBING.** Heat treated, smooth surface dies clamp tubing securely without scoring it. Clamping screw has hex head for wrench.

**No. 537-F** Flares and burnishes 3/4", 7/8", 1" and 1 1/4" O.D. Tubing. Net wt. 5 lbs.

**No. 637-F** Flares and burnishes 1 1/2", 1 3/4" and 2" O.D. Tubing. Net wt. 13 lbs.

**No. 61960** Die Holder Assembly for 537-F.

**No. 61948** Yoke Assembly for 537-F.



Flares Are  
Rolled Out  
Above Block

Feed Release  
and Burnishing  
Mechanism

Patent Nos.  
2,505,665;  
2,505,666;  
2,534,510.  
Pat. Can. 1951.  
Other Patents  
Pending.

Has Extension  
For Clamping  
in Vise

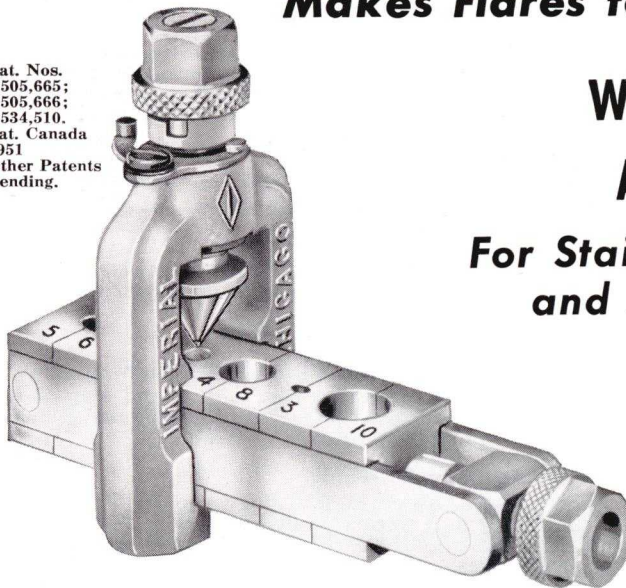




## IMPERIAL 37° FLARING TOOL

*Makes Flares to AN Standards*

Pat. Nos.  
2,505,665;  
2,505,666;  
2,534,510.  
Pat. Canada  
1951  
Other Patents  
Pending.



**With Flare Control Gage  
And Burnishing Action**

**For Stainless Steel, Steel, Titanium  
and All Other Metal Tubing**

Rolls out precision 37° flares in conformity with aviation standard AND 10061. A compact, easy to operate tool suitable for use in the field or in the shop. Flares 6 sizes of high strength stainless steel (including MIL-T-6845), titanium and all other kinds of metal tubing— $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D.

### GAGE CONTROLS SIZE OF FLARES

A special gage incorporated in this tool controls insertion of tube so that it is clamped with the proper amount extending above the bar. Travel of compressor screw is also limited, thereby assuring a precision flare of the correct dimensions every time.

### ELIMINATES STRESS CONCENTRATION

Flares are rolled out in the air above die block, instead of being formed against block as with the ordinary flaring tool. When flares are formed in this manner, original wall thickness is maintained at base of flare, the incidence of stress concentration is reduced and most work hardening characteristics eliminated. This assures a far stronger flare. Roller action, reduces torque required.

### BURNISHES FLARES

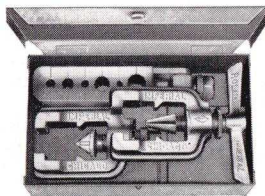
When cone is backed off after flare is made, feed is disengaged during first revolution, causing 3 rollers in cone to perform a burnishing action and provide a smooth, true surface on the flare.

### DOES NOT SCORE THE TUBING

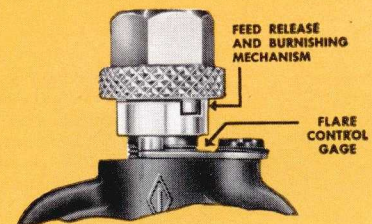
Heat treated, smooth surface dies clamp the tubing securely without scoring it, thus eliminating weakness at this point.

**NO. 400-F IMPERIAL 37° FLARING TOOL.** Flares and burnishes  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ", and  $\frac{5}{8}$ " O.D. tubing. Furnished in steel kit. Net wt. 2 lbs., 9 oz.

**NO. 402-F FLARING AND REAMING KIT.** For best results, No. 401-F Reamer should be used to remove all burrs before making a flare.) Contains No. 400-F Flaring Tool and No. 401-F Reaming Yoke. Reams  $\frac{1}{4}$ " to  $\frac{5}{8}$ " O.D. Tubing. Furnished in metal kit. Wt. 3 lbs., 2 oz.

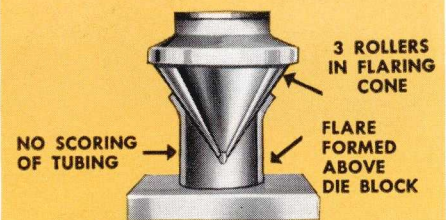


Extra Parts  
No. 69063 Yoke Assembly.  
No. 61826 Die Holder Assembly.



### HOW GAGE CONTROLS SIZE OF FLARES

The Gage is a wishbone shaped spacer pivoted to yoke. Correct leg of gage is pivoted into position and feed screw turned down until shoulder contacts gage. After slipping yoke over die block, tubing is inserted in proper opening, using flaring cone as a stop. Gage is then pivoted into neutral position and compressor screw turned down as far as it will go. Shoulder on screw acts as a positive stop. This gaging method assures flares of the correct dimensions every time.



### MAKES STRONGER FLARES

Because flares are formed by roller action above die block, the chances of stress concentration and work hardening are reduced, and original wall thickness is maintained at base of flare.





# IMPERIAL 37° *ROL-AIR*\* FLARING TOOL



Has  
**NEW**  
**HARD CHROME**  
**Finished**  
**CONE**



Faceted Flaring  
Cone Rolls Out  
Flare Above  
Die Block

## With Automatic Burnishing Action FOR ALUMINUM AND COPPER TUBING

Rolls 37° flares in the air and then automatically burnishes them to produce the finest flares we have ever seen. Handles 6 popular sizes of soft copper and aluminum tubing— $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " O.D.

### Has Faceted Flaring Cone

Super-smooth, multi-faced flaring cone with tool chrome finish, rolls out the 37° flare above die block.

### Automatically Burnishes Flares

When backing off cone after flare is made, this tool automatically performs a burnishing action and gives flare a highly polished finish.

### Makes Stronger Flares

Because flare is not formed against die block, original wall thickness is maintained at base of flare and there is no chance of "washing out" flare. Stronger flares, which stand up far longer under vibration, are assured.

### Does Not Score the Tubing

Heat treated, smooth surface dies clamp the tubing without scoring it. A single convenient screw at the end of the holder, with rod handle for leverage, provides easy tightening. Tool has forged steel yoke.

**No. 507-F Imperial Rol-Air Flaring Tool. Flares and burnishes  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D. tubing.**  
Net wt. 1  $\frac{1}{2}$  lbs.

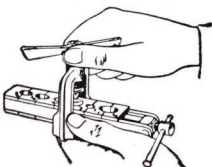
#### Extra Parts

- No. 64742 Yoke Assembly only
- No. 64745 Cone Assembly.
- No. 64743 Bar Assembly only.

## Note Fast, Easy Operation

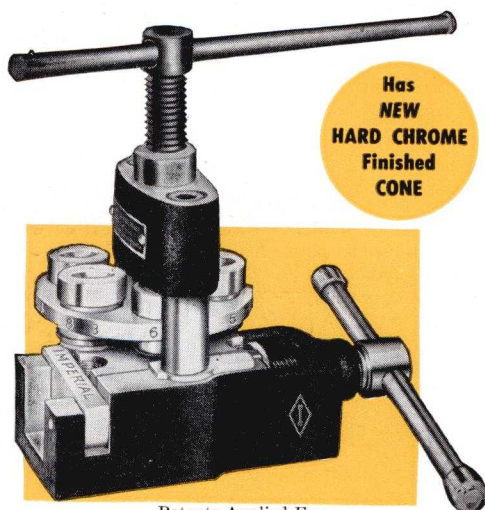


Tubing is clamped in die block so that it extends approximately  $\frac{1}{4}$ " above face of block.



Yoke is slipped over end of die holder and feed screw turned 5 or 6 revolutions after cone contacts tubing. When backing off the flaring cone, a special mechanism causes automatic burnishing of flare.

# IMPERIAL 37° DOUBLE-FLARING TOOL



Has  
**NEW**  
**HARD CHROME**  
**Finished**  
**CONE**

Patents Applied For

**No. 256-F Makes Precision Double Flares to AN Standard AND10078 in Soft Aluminum and Copper Tubing**

**No. 257-F Makes Double Flares in Seamed or Seamless Thin-Wall Soft Steel, Copper and Aluminum Tubing**

Tools flare sizes of  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " O.D. tubing, having not over .040" wall. Both tools can also be used for making single flares in soft copper and aluminum tubing. No. 257-F likewise makes single flares in J.I.C. steel tubing.

### Accuracy is controlled

Adapters for first forming operation serve as a positive gage for positioning tubing in die block. Correct depth of tube insertion and tube alignment are automatic. Thus a flare of the correct size, accurately formed, is assured every time.

### Safer Flares for Many Uses

Tool folds over end of tubing to make flare with double-thick, double-strength walls. Double flares eliminate danger of weakening or washing out flares through over-tightening—make possible repeated, tight reconnections. This is exceptionally important in the case of aluminum. The hard chrome finished flaring cone makes better flares, assures tighter joints and reduces flaring torque up to 55%.

**No. 256-F Imperial Double-Flaring Tool for aluminum and copper tubing in sizes of  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " O.D.**

**No. 257-F Imperial Double-Flaring Tool for steel, aluminum and copper tubing in sizes of  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ "  $\frac{3}{8}$ " and  $\frac{1}{2}$ " O.D.**

#### Extra Parts

- No. 68019—Pair of Die Blocks for No. 256-F
- No. 69077—Pair of Die Blocks for No. 257-F

\*T. M. Reg. U.S. Pat. Off.



First operation, using adapter, bells tubing as shown at left.



In second operation, flare is completed as shown at right.





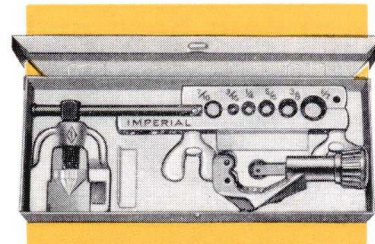
## IMPERIAL FLARING AND CUTTING TOOL KITS

(45° Flare)

These kits have the necessary tools for a quick cutting and flaring job on copper, aluminum and brass tubing.

All kits include No. 274-F Tube Cutter with spare cutting wheel, for tubing from  $\frac{1}{8}$ " to 1" O.D. and flaring tools as listed. Packed in steel kit.

Cat. No. of Kit	No. of Flaring Tool Included	No. of Tube Cutter Included	Approx. Weight
225-F	93-F	274-F	3 lbs.
1225-F	193-F	274-F	3 lbs.
226-F	95-F	274-F	3 lbs.
1226-F	195-F	274-F	3 lbs.
123-F	300-F	274-F	3 lbs.
124-F	500-F	274-F	3 lbs.



### IMPERIAL WIDE-RANGE FLARING AND CUTTING TOOL KIT

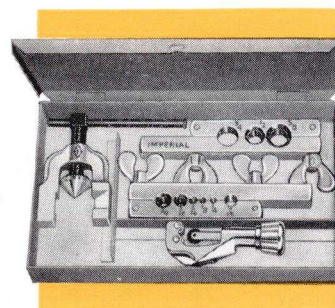
Handles an exceptionally wide range of tubing sizes. Cuts and flares copper, aluminum and brass tubing.

Kit includes:

No. 274-F Tube Cutter with spare cutting wheel, for tubing from  $\frac{1}{8}$ " to 1" O.D.

No. 375-FS Wide-Range Flaring Tool for tubing from  $\frac{1}{8}$ " to  $\frac{3}{4}$ " O.D.

**No. 120-F Wide-Range Flaring and Cutting Tool Kit.** Packed in steel kit. Wt.  $5\frac{1}{4}$  lbs.



### IMPERIAL WIDE-RANGE TUBING TOOL KIT

A handy kit containing the necessary tools for cutting, flaring and bending copper, aluminum and brass tubing quickly and accurately.

Kit includes:

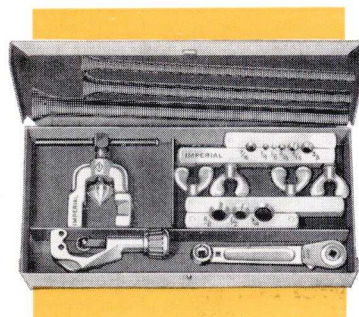
No. 274-F Tube Cutter with spare cutting wheel, for tubing from  $\frac{1}{8}$ " to 1" O.D.

No. 375-FS Wide-Range Flaring Tool for tubing from  $\frac{1}{8}$ " to  $\frac{3}{4}$ " O.D.

No. 102-F Bending Springs for  $\frac{1}{4}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " O.D. tubing.

No. 123-C Ratchet Wrench with  $\frac{1}{4}$ " ratchet and  $\frac{3}{16}$ " square opening,  $\frac{1}{4}$ " square opening and  $\frac{1}{2}$ " hex in handle.

**No. 121-F Wide-Range Tubing Tool Kit.** Packed in steel kit. Wt.  $5\frac{3}{4}$  lbs.



### IMPERIAL FLARING AND CUTTING TOOL KIT (37° Flare)

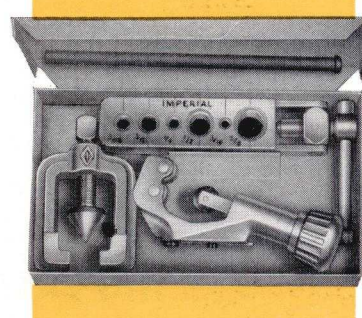
Has the necessary tools for cutting and flaring soft steel, copper and aluminum tubing.

Kit includes:

No. 437-F 37° Flaring Tool for  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D. Tubing.

No. 274-F Tube Cutter with spare cutting wheel, for tubing from  $\frac{1}{8}$ " to 1" O.D.

**No. 122-F Flaring and Cutting Tool Kit.** —Wt.  $2\frac{3}{4}$  lbs.



### BLOCK TIN FLARING AND CUTTING KIT

Contains tools for quickly cutting and flaring block tin pipe.

Kit includes:

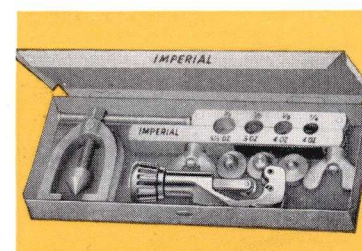
No. MB-86 Block Tin Flaring Tool which gives the proper 90° flare to  $\frac{1}{4}$ " I.D. 4 oz.,  $\frac{3}{8}$ " I.D. 5 oz. and  $\frac{1}{2}$ " I.D.  $5\frac{1}{2}$  oz. block tin pipe.

No. 274-F Tube Cutter for tubing from  $\frac{1}{8}$ " to 1" O.D.

**No. MB-87 Block Tin Flaring and Cutting Kit.** —Wt. 3 lbs.

**No. MB-86 Block Tin Flaring Tool only.** —Wt.  $1\frac{3}{4}$  lbs.

**No. 274-F Tube Cutter only.** —Wt. 6 oz.







## IMPERIAL <sup>®</sup> BLUE DOT LEVER-TYPE TUBE BENDERS

### Bend Both Hard and Soft Tubing

Exclusive design features enable these widely used Imperial lever-type tube benders to bend hard drawn copper, steel (including JIC), aluminum and stainless steel tubing and thin wall conduit, in addition to soft tubing.

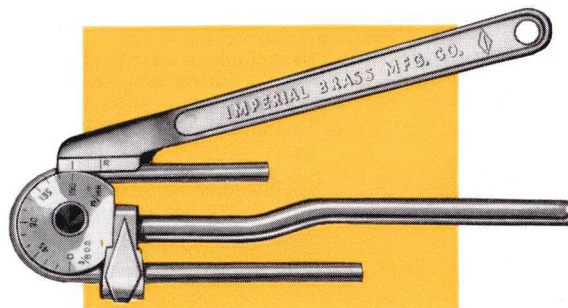
These smoothly operating tube benders form neat, accurate bends to a short radius in a minimum of time without marring or deforming the tubing. Open side benders which slip over the tubing at the exact point where bend is desired. Especially handy in hard-to-get-at places where tubing has been partially connected.

Bends can be made to any angle up to 180°. Calibrated. New design of hook holds tubing securely and prevents marring of either hard or soft tubing.

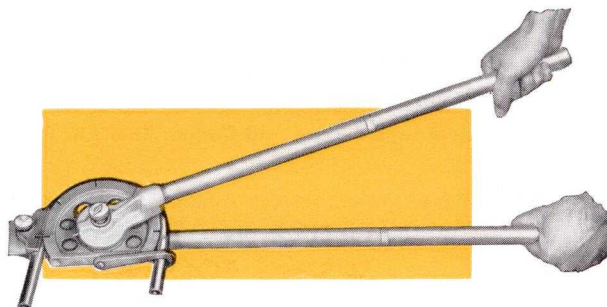
#### Specify Catalog Number and Size When Ordering

Each tool bends one size of tubing.

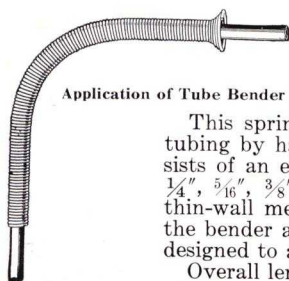
Catalog Number	Outside Diameter of Tubing	Nominal Size	Radius to Center of Tube	Weight Each
364-FH	1/8"	—	3/8"	1 1/2 lb.
364-FH	3/16"	—	7/16"	9 oz.
364-FH	1/4"	1/8"	9/16"	3/4 lb.
364-FH	5/16"	—	1 1/16"	1 1/4 lbs.
364-FH	3/8"	1/4"	1 5/16"	1 3/4 lbs.
364-FH	7/16"	—	1 11/16"	3 1/2 lbs.
364-FH	1/2"	3/8"	1 13/16"	3 1/2 lbs.
364-FH	5/8"	1/2"	2 1/4"	10 lbs.
364-FH	3/4"	5/8"	3"	10 1/2 lbs.
364-FH	7/8"	3/4"	3"	10 1/2 lbs.



Style of benders furnished for 1/8" to 3/8" O.D. Tubing. Benders for 1/16" and 1/2" O.D. tubing are slightly different in construction. Pat. Nos. 2,796,785; 2,464,800; 2,171,907



Style of benders furnished for 5/8", 3/4" and 7/8" O.D. Tubing.



Application of Tube Bender

## IMPERIAL TUBE BENDER

### EXTERNAL SPRING TYPE

This spring-type Imperial tube bender is an efficient, low-cost tool for bending tubing by hand to any desired shape without collapsing the tube. The bender consists of an especially prepared spring wire coil and is furnished in six sizes to take 1/4", 5/16", 3/8", 7/16", 1/2" and 5/8" outside diameter copper, aluminum and other soft, thin-wall metal tubing. Springs have an attractive nickel finish. The belled end of the bender assures ease in removing from tubing after bend has been made. Bender designed to assure against scratching tubing.

Overall length of 1/4", 5/16", 3/8" benders is 10". 7/16", 1/2", 5/8" benders are 12" overall.

No. 101-F—Set of Six Tube Benders. Weight 2 1/4 lbs.

No. 163-F—Set of Four Tube Benders (1/4", 3/8", 1/2" and 5/8"). Weight 1 5/8 lbs.

No. 112-F—Set of Three Tube Benders (1/4", 5/16" and 3/8"). Weight 3/4 lb.

#### No. 102-F INDIVIDUAL BENDERS

Size	Weight Each	Size	Weight Each
1/4"	3 oz.	7/16"	6 1/4 oz.
5/16"	3 oz.	1/2"	6 1/2 oz.
3/8"	4 oz.	5/8"	8 oz.



## IMPERIAL INSIDE BENDING SPRING

This bender offers a simple, reliable method for bending tubing by hand without collapsing or crimping the tube.

The specially prepared spring wire coil is inserted inside the tubing and bends then can be made quickly and easily to any desired shape. Furnished in three sizes, to take 3/8", 1/2" or 5/8" outside diameter copper, aluminum and other soft, thin-wall metal tubing. Overall length of bender is 6 feet.

#### Specify Catalog Number and Size when ordering.

Catalog Number	Size	Weight Each
302-F	3/8"	1 1/2 lb.
302-F	1/2"	1 lb.
302-F	5/8"	1 7/8 lbs.







## IMPERIAL BLUE DOT®

# COMBINATION LEVER-TYPE TUBE BENDERS

### Now Bend Both Hard and Soft Tubing

Pat. Nos. 2,171,907; 2,796,785

New exclusive design features now enable these heavy-duty tools to bend hard drawn copper, steel (including JIC), aluminum and stainless steel tubing and thin wall conduit, in addition to soft tubing.

Each of these tools is quickly adapted for bending the various sizes within its range, by simply changing the forming wheel and block. The 1/4" and 5/16" O.D. sizes of tubing are bent with No. 364-FH type tools, which are included in sets covering these sizes.

These are the easiest operating of lever-type benders. Long handles provide good leverage. Handle can be lifted and repositioned during bend so that best leverage is obtained at all times. Tubing is removed easily after bending. The one-piece type of benders furnished for the smaller sizes add greatly to the convenience of bending these sizes.

Bends can be made to any angle up to 180°. Calibrated to show angle of bend. Bender can be positioned on tubing at exact point bend is needed.

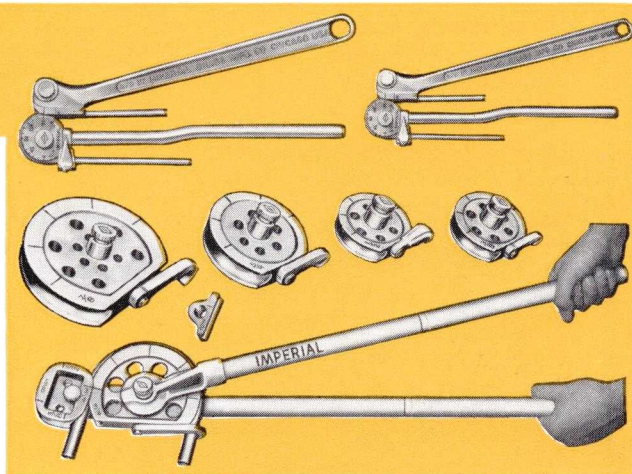
## WIDE-RANGE TUBE BENDERS

### Bend Both Hard and Soft Tubing

Furnished in steel chest which has space for other tools needed on the job.

**No. 260-FH** for 7 Sizes Shown  
Below. Wt. 23 lbs.

O.D. Tube	Nominal Size	Radius to Cen. of Tube
1/4"	1/8"	9/16"
5/16"	—	1 1/16"
3/8"	1/4"	1 5/8"
1/2"	3/8"	1 5/8"
5/8"	1/2"	2 1/4"
3/4"	5/8"	3"
7/8"	3/4"	3"



**No. 350-FH** for 6 Sizes Shown  
Below. Wt. 20 lbs.

O.D. Tube	Nominal Size	Radius to Cen. of Tube
1/4"	1/8"	9/16"
5/16"	—	1 1/16"
3/8"	1/4"	1 5/8"
1/2"	3/8"	1 5/8"
5/8"	1/2"	2 1/4"
3/4"	5/8"	3"

**No. 360-FH** for 4 Sizes Shown  
Below. Wt. 20 lbs.

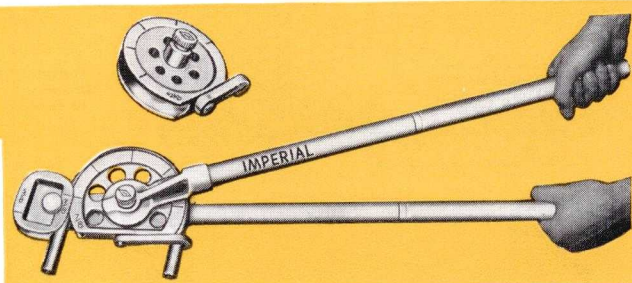
O.D. Tube	Nominal Size	Radius to Cen. of Tube
3/8"	1/4"	1 5/8"
1/2"	3/8"	1 5/8"
5/8"	1/2"	2 1/4"
3/4"	5/8"	3"



## 2-in-1 TUBE BENDERS

### Bend Both Hard and Soft Tubing

Each bender handles two sizes of tubing as shown



**No. 361-FH.** Wt. 10 lbs.

O.D. Tube	Nominal Size	Radius to Cen. of Tube
5/8"	1/2"	2 1/4"
7/8"	3/4"	3"

**No. 362-FH.** Wt. 9 1/4 lbs.

O.D. Tube	Nominal Size	Radius to Cen. of Tube
1/2"	3/8"	1 5/8"
5/8"	1/2"	2 1/4"

**No. 363-FH.** Wt. 11 lbs.

O.D. Tube	Nominal Size	Radius to Cen. of Tube
3/4"	5/8"	3"
7/8"	3/4"	3"

**No. 365-FH.** Wt. 10 lbs.

O.D. Tube	Nominal Size	Radius to Cen. of Tube
5/8"	1/2"	2 1/4"
3/4"	5/8"	3"

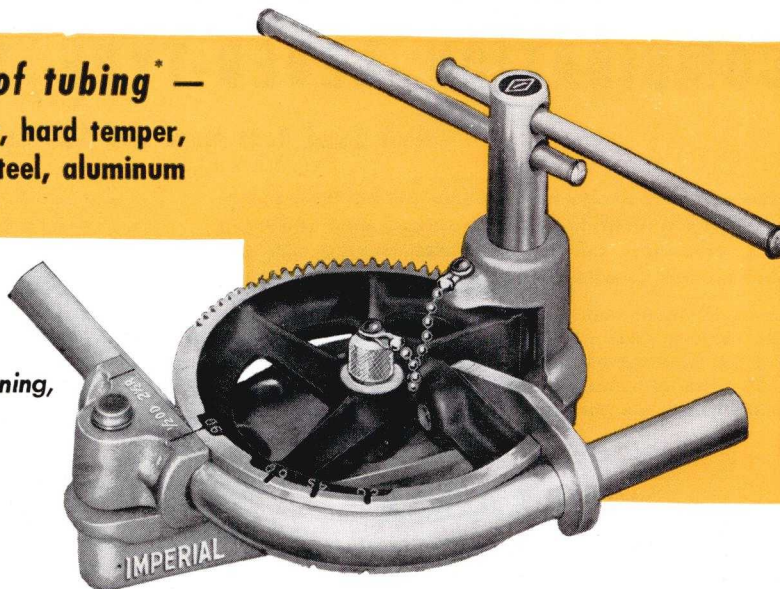




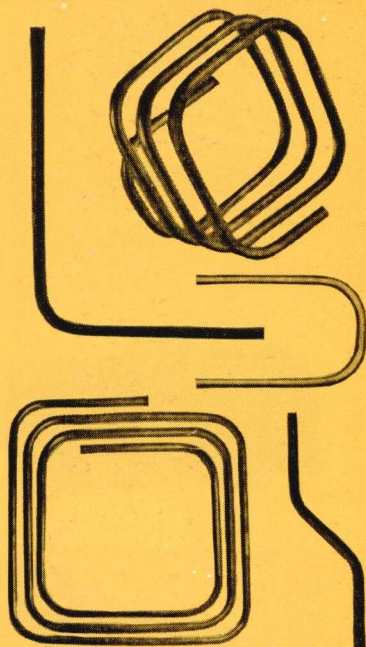
## IMPERIAL UNIVERSAL GEAR-TYPE TUBE BENDERS

**Will bend any type of tubing\* —**  
including hard drawn copper, hard temper,  
heavy wall steel, stainless steel, aluminum  
and brass tubing

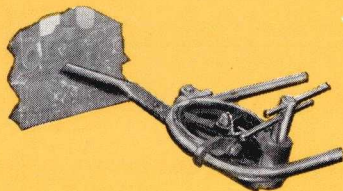
For Refrigeration, Air Conditioning,  
Radiant Heating, Plumbing,  
Heating, Hydraulics, Aircraft,  
Industrial Plants, Instrument  
Lines, etc.



### FOR ALL BENDING WORK



CAN BE CLAMPED IN BENCH VISE  
or, with Extension Handle No. 271-F,  
can be clamped in pipe vise as  
shown in illustration.



Sturdy, compact, economically priced benders for use with any type of tubing\*—hard or soft temper. So rugged that they will bend hard temper, heavy steel tube or iron pipe. They provide a simple, time-saving method of making good bends on the job or in the shop.

### MAKE SMOOTH, EVEN BENDS—EXTREMELY VERSATILE

A bending action similar to the original drawing of tubing, combined with close fit, assures that tubing will not kink or flatten. Benders can be positioned on tube at any point desired. Bends can be made with one end of tube connected as well as when both ends are free. Will make right or left hand bends, return bends, offset bends, right angle bends.

### EASY TO OPERATE

High gear ratio makes it easier to bend even larger sizes of tubing. Benders are designed so that they can be held by hand, clamped in a vise or bolted to a bench. Can be used with pipe vise with extension handle No. 271-F.

### STRONG, LIGHT WEIGHT

Made of high tensile strength materials to assure durability and satisfactory service—yet light in weight to provide portability.

### Specify Outside Diameter of Tube When Ordering

A separate bender is used for each size of tubing

Catalog No.	Outside Diameter of Tube	Nominal Tube Size	Bending Radius to Center of Tube	Minimum Return or Coil Bend from Center to Center of Tubing	Weight Each in Lbs.	Price Each
270-F	3/8"	1/4"	1 3/4"	4 1/2"	3	
270-F	1/2"	3/8"	2 1/2"	6"	4 3/4	
270-F	5/8"	1/2"	3"	7 1/2"	8 1/2	
270-F	3/4"	5/8"	4"	9 1/2"	15	
270-F	7/8"	3/4"	4"	9 1/2"	14 3/4	
270-F	1"		4"	9 1/2"	14 3/4	
270-F	1 1/8"	1"	4"	9 1/2"	14 1/4	

### No. 271-F Extension Handle.

Fits all No. 270-F Benders. Wt. 1 3/4 lbs.  
For use when clamping bender in pipe vise.

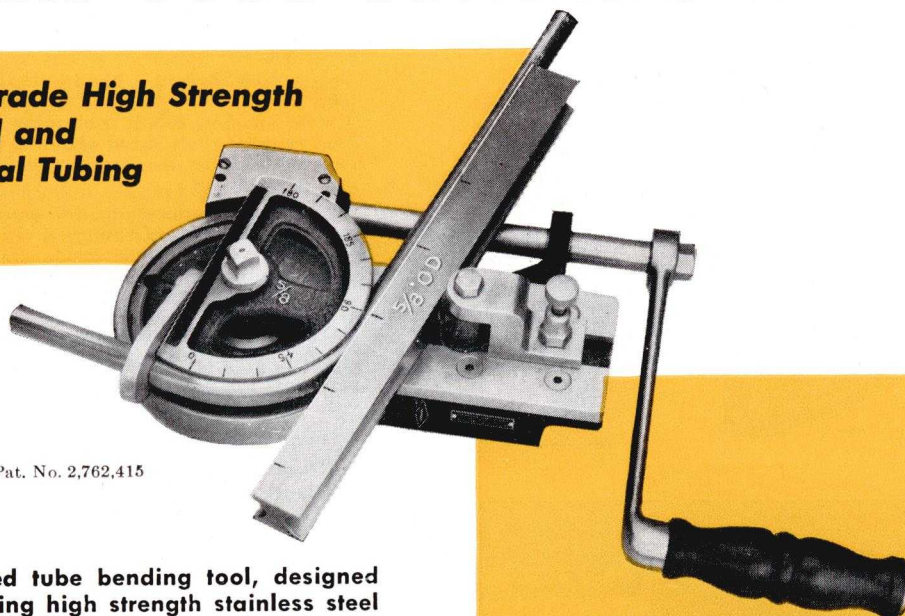
\*Type L tubing in sizes of 1" and 1 1/8" should be stress relieved before bending. Heat to temperature of approximately 800° F. Type M tubing cannot be bent with hand operated tube benders.





## IMPERIAL TUBE BENDING TOOL

**For Aircraft Grade High Strength Stainless Steel and All Other Metal Tubing**



Pat. No. 2,762,415

A manually operated tube bending tool, designed specifically for bending high strength stainless steel tubing (MIL-T-6845), such as used in aircraft hydraulic systems. Also for bending steel, copper, titanium, aluminum and other metal tubing—hard or soft temper. Tool is portable and can be utilized for field maintenance, at major overhaul stations, or for experimental work. Bends 6 sizes of tubing— $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ ", and  $\frac{3}{4}$ " outside diameter.

### DOES NOT DEFORM TUBING

Tubing will not kink, wrinkle or flatten because of the smooth, worm gear drive which causes an even torque to be exerted throughout the course of the bend, thereby eliminating sudden strains or backlash which might result in deformation of tubing. Slippage is avoided through the use of a follow bar which reduces drag on tubing. Cross sectional diameter of tubing at any point on bend and wall thickness in bend section are not reduced appreciably. Precision workmanship throughout construction of bender, combined with method of operation, prevents formation of scratches, diemarks and other surface imperfections on tubing.

### DESIGNED FOR CONVENIENT MANUAL OPERATION

Worm gear drive multiplies effort applied and reduces torque required for bending. Tool is quickly adapted to the various sizes by merely changing forming wheel and follow bar. It is portable and can be clamped in a vise or mounted on a tripod.

### IDEAL FOR ALL BENDING WORK

Tool will make bends up to  $180^\circ$  in one operation—without resetting or adjusting the tubing. Forming wheels are calibrated to indicate degree of bend. Bender can be positioned on tube at any point desired. Makes return bends, offset bends, right angle bends, etc. Makes bends to the practical minimum radii for high strength stainless steel tubing, as recommended by major aircraft companies.

**No. 600-F IMPERIAL TUBE BENDING TOOL** for  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " and  $\frac{3}{4}$ " O.D. tubing. Furnished in steel kit. Wt. complete 35 lbs.



Tool furnished in steel carrying case.  
Size:  $14\frac{3}{16}$ " x  $8\frac{1}{16}$ " x  $6\frac{3}{16}$ ".

### RADII OF BENDS

O.D. of Tube	Radius to Center of Tube	O.D. of Tube	Radius to Center of Tube
$\frac{1}{4}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	2"
$\frac{5}{16}$ "	1"	$\frac{5}{8}$ "	$2\frac{1}{2}$ "
$\frac{3}{8}$ "	$1\frac{1}{4}$ "	$\frac{3}{4}$ "	3"





## IMPERIAL SWAGING TOOLS

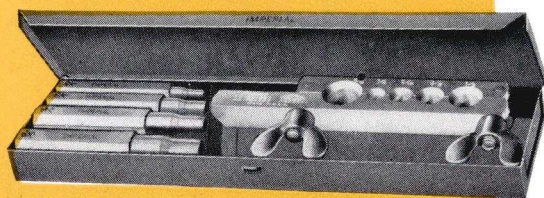
For Making Joints Without Fittings



No. 193-S



No. 93-S



No. 195-S

Pat. No. 2,553,813. Pat. Can. 1953

Now this No. 193-S set of the four most used swaging tools is furnished in a handy vinyl plastic kit. Includes sizes of  $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " O. D. ( $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " nom.) A steel kit, No. 195-S, containing a flaring bar and the four swaging tools listed above is also available. Single swaging tools for one size, or a combination of two sizes, can be furnished.

Emergency connections are quickly made with these tools. Two lengths of tubing of the same size are easily joined by enlarging the inside diameter of one of the pieces of tubing to permit the insertion of the other piece of tubing. The two lengths are then assembled and soldered together, making a secure joint. The illustrations below explain this simple operation.

**No. 193-S—Vinyl Kit includes 4 Swaging Tools— $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D. ( $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " nominal). Wt. 1 lb.**

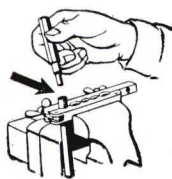
**No. 195-S—Steel Kit includes Flaring Bar and 4 Swaging Tools— $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D. ( $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " nominal). Wt. 2 lbs.**

**No. 30231—Flaring Bar only. Wt. 1 lb.**

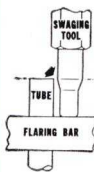
### SWAGING TOOLS

Cat. No.	O.D. Tube Size	Nom. Tube Size	Weight Each	Price Each
93-S	$\frac{3}{16}$ "	....	3 oz.	
93-S	$\frac{1}{4}$ "	$\frac{1}{8}$ "	3 oz.	
93-S	$\frac{5}{16}$ "	....	$\frac{1}{4}$ lb.	
93-S	$\frac{3}{8}$ "	$\frac{1}{4}$ "	$\frac{1}{4}$ lb.	
93-S	$\frac{1}{2}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ lb.	
93-S	$\frac{5}{8}$ "	$\frac{1}{2}$ "	$\frac{1}{2}$ lb.	
93-S	$\frac{3}{4}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ lb.	
93-S	$\frac{7}{8}$ "	$\frac{3}{4}$ "	1 lb.	
94-S	$\frac{1}{2}$ " & $\frac{5}{8}$ "	$\frac{3}{8}$ " & $\frac{1}{2}$ "	$\frac{1}{2}$ lb.	
94-S	$\frac{3}{4}$ " & $\frac{7}{8}$ "	$\frac{5}{8}$ " & $\frac{3}{4}$ "	1 lb.	

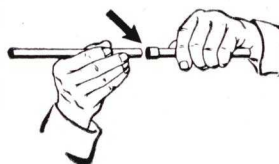
### The Quick Way to Connect Tubing Without Fittings



1. End of one piece of tubing is enlarged to permit insertion of other piece of tubing.



2. Top of bevel on tool provides gage point to show how far to insert tube through bar.

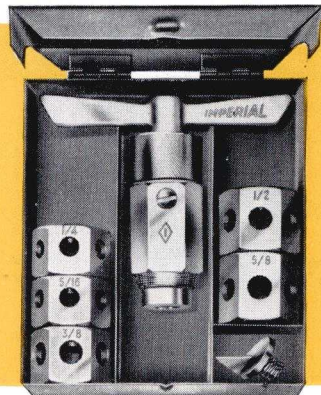


3. Two pieces of tubing ready for assembly. The end of one piece has been swaged.

## IMPERIAL REFACING TOOL

With Precision Feed

45° and 37° Types



An improved tool for refacing damaged male flare seats on fittings and valves. Makes nicked and marred seats as good as new.

Has precision feed control for cutter so that flare seat is restored to original accuracy and smoothness without gouging or chattering. Cutter is replaceable.

**No. 345-F—45° Refacing Tool (illustrated) complete with cutter and adapters for  $\frac{1}{4}$ ",  $\frac{3}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " fittings. Furnished in steel kit. Wt. 2 lbs.**

**No. 337-F—37° Refacing Tool complete with 2 cutters and adapters for  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " fittings. Furnished in steel kit. Wt. 2  $\frac{1}{8}$  lbs.**

### Extra Parts

**No. 346-F Adapter only for No. 345-F. Specify size. Wt. 1  $\frac{3}{8}$  oz.**

**No. 347-F Cutter Assembly (without cutter) for No. 345-F. Wt. 11 oz.**

**No. 348-F Cutter Blade for No. 345-F. Wt.  $\frac{1}{2}$  oz.**

**No. 338-F Adapter only for No. 337-F. Specify size. Wt. 1  $\frac{3}{8}$  oz.**

**No. 339-F Cutter Assembly (without cutter) for No. 337-F. Wt. 11 oz.**

**No. 340-F Cutter Blade for No. 337-F, for  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ " fittings. Wt.  $\frac{1}{2}$  oz.**

**No. 341-F Cutter Blade for No. 337-F, for  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " fittings. Wt.  $\frac{1}{2}$  oz.**





# IMPERIAL TUBING TOOLS

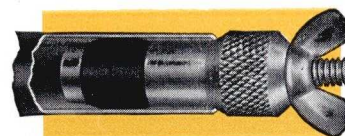
THE IMPERIAL BRASS MFG. CO.

CHICAGO 31, ILLINOIS

TEST PLUGS • TEST CAPS  
PINCH-OFF

## IMPERIAL TUBING TEST PLUGS

For Temporarily Shutting Off Tubing



For use in instrumentation, radiant heat, refrigeration, LP-Gas—anywhere that it is desirable to shut off the end of a tube temporarily without pinching it off or installing a valve.

Used, for example, where it is desirable to test tubing installations before putting into service or when "trouble shooting" for leaks. Plug is inserted in end of tube and wing nut is tightened. This expands synthetic rubber portion of plug and seals tube. Will hold pressures up to 100 lbs.

Test plug can be used on liquid or gas lines, except those which contain materials that would deteriorate synthetic rubber.

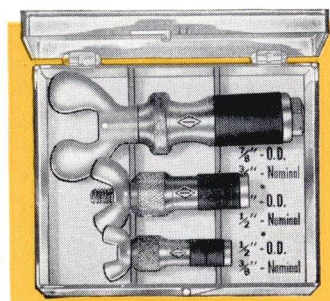
Cat. No.	O.D. of Tube	Nominal Size	Cat. No.	O.D. of Tube	Nominal Size
140-F	1/4"	1/8"	140-F	5/8"	1/2"
140-F	3/8"	1/4"	140-F	3/4"	5/8"
140-F	1/2"	3/8"	140-F	7/8"	3/4"
			140-F	1 1/8"	1"

## IMPERIAL TEST PLUG KIT

Contains Plugs for 3 Popular Tube Sizes

This attractive transparent plastic kit contains test plugs for 3 popular tube sizes—1/2", 5/8", 1" O.D. (3/8", 1/2", 3/4" nominal). Especially handy for plumbing and heating. Sizes are clearly identified in box.

No. 142-F—Imperial Test Plug Kit. — Wt. 9 oz.



## IMPERIAL TUBING TEST CAPS

For Temporarily Shutting Off Tubing

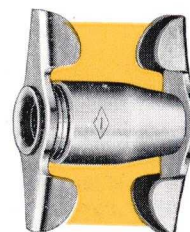
For use wherever it is desirable to shut off the end of a tube temporarily without pinching it off or installing a valve.

Can be used for working pressures to 100 psi. With this female test cap it is not necessary to deburr the tubing, and wall thickness of tube is not a factor. Can be used even when surface of tube is rough.

Cap is placed over end of tube and wing

nut is tightened. This causes synthetic rubber seal of cap to grip outside of tube.

Cat. No.	O.D. of Tube	Nominal Size
240-F	1/4"	1/8"
240-F	5/16"	...
240-F	3/8"	1/4"
240-F	1/2"	3/8"



## IMPERIAL PINCH-OFF TOOLS

With Re-Rounding Holes

For temporarily closing copper, brass, aluminum and soft steel tubing so that no gas or liquid will pass this sealed part of the tubing. This makes it possible to disconnect a line while making repairs or installations without losing any of the liquid or gas.

These tools will also open up the tubing and round it back into shape after the job is completed.

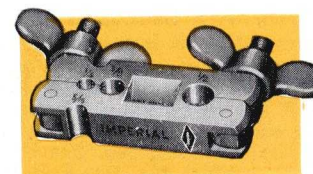
The No. 105-F Pinch-Off Tool is furnished with hex nuts and the No. 105-FF is furnished with wing nuts.

No. 105-F—Pinch-Off Tool for 1/4", 3/8" and 1/2" O.D. Tubing. Wt. 3/4 lb.

No. 105-FF—Pinch-Off Tool for 1/4", 5/16", 3/8" and 1/2" O.D. Tubing. Wt. 3/4 lb.



No. 105-F



No. 105-FF





# IMPERIAL No. 391-F TUBING TOOL KIT

*For*  
**INSTRUMENTATION  
SERVICE**



Here in one convenient kit is a complete set of the tubing tools most needed for instrumentation service. There are tools for cutting, flaring, bending, swaging and temporary closure of tubing in all the most popular instrument tubing sizes.

Tools include: Hi-Duty Tube Cutter with ball bearing action and spare cutting wheel; Rol-Air Flaring Tool that flares tubing and then automatically burnishes flare to a highly polished finish; Blue Dot lever type Tube Benders that bend both hard and soft tubing, including stainless steel; 3 test plugs; and 3 swaging tools.

Tools are provided in a handy steel Tool Box with 2 cantilever trays and snap lock with key. 12 adjustable dividers included. The cantilever trays make all tools instantly visible when kit is opened.

**PLENTY OF ROOM FOR OTHER TOOLS.** Note that kit provides ample space for other tools or parts needed on the job.

**TOOL BOX INCLUDED NO CHARGE** with this kit; complete unit is priced at the cost of the tools alone.

## IMPERIAL No. 394-F TUBING TOOL KIT FOR CONSTRUCTION CONTRACTORS AND FLEETS

A kit which contains the tubing tools most needed for servicing construction equipment and fleets.

Kit Includes: No. 274-F Tube Cutter for  $\frac{1}{8}$ " to 1" O.D. tubing; No. 500-F Rol-Air Flaring Tool for  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " O.D. tubing; No. 360-FH Combination Blue Dot Tube Bender for  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ "

**OPTIONAL—PICK YOUR OWN CONTENTS.** If you would like to select other Imperial Tubing Tools not included in the kit, in place of some of the tools listed below, Imperial Distributors will be glad to revise the contents to your specifications.

**No. 391-F IMPERIAL TUBING TOOL KIT FOR INSTRUMENTATION SERVICE.**

Size of kit: 21" x 7 $\frac{1}{2}$ " x 7 $\frac{1}{4}$ ". Weight 19 $\frac{1}{2}$  lbs.

### LIST OF CONTENTS

- 1 No. 274-F Hi-Duty Tube Cutter
- 1 No. 500-F Rol-Air Flaring Tool
- 1 No. 364-FH  $\frac{1}{4}$ " Tube Bender
- 1 No. 364-FH  $\frac{3}{8}$ " Tube Bender
- 1 No. 364-FH  $\frac{1}{2}$ " Tube Bender
- 1 No. 208-F Inner and Outer Reamer
- 1 No. 140-F  $\frac{1}{4}$ " Test Plug
- 1 No. 140-F  $\frac{3}{8}$ " Test Plug
- 1 No. 140-F  $\frac{1}{2}$ " Test Plug
- 1 No. 93-S  $\frac{1}{4}$ " Swaging Tool
- 1 No. 93-S  $\frac{3}{8}$ " Swaging Tool
- 1 No. 93-S  $\frac{1}{2}$ " Swaging Tool

and  $\frac{3}{4}$ " O.D. tubing.

The steel tool box, which is included without additional charge, provides ample space for other tools or parts needed on the job.

**No. 394-F IMPERIAL TUBING TOOL KIT.**  
Size of kit: 20 $\frac{1}{4}$ " x 6 $\frac{3}{4}$ " x 6" Weight 22 lbs.





## IMPERIAL No. 392-F SERVICE AND INSTALLATION KIT

### TUBING TOOLS—CHARGING AND TESTING EQUIPMENT



*For*  
**RESIDENTIAL  
AIR CONDITIONING**

Here in one convenient kit is a complete set of the tubing tools and charging and testing equipment most needed for residential air conditioning work. There are tools for cutting, flaring, bending, reaming and swaging of tubing in all the most popular sizes for this service.

Tubing Tools include: Hi-Duty Tube Cutter with ball bearing action and spare cutting wheel; Wide Range Flaring Tool that flares all sizes of tubing from  $\frac{1}{8}$ " to  $\frac{3}{4}$ " O.D. inclusive; Blue Dot lever type Tube Benders that bend both hard and soft tubing, including stainless steel; and 4 Swaging Tools.

Also included in the kit are: Double Gauge Charging and Testing Unit and two Charging Hoses.

Tools are provided in a handy steel Tool Box with 2 cantilever trays and snap lock with key. 12 adjustable dividers included. The cantilever trays make all tools instantly visible when kit is opened.

**PLENTY OF ROOM FOR OTHER TOOLS.** Note that kit provides ample space for other tools or parts needed on the job.

**TOOL BOX INCLUDED NO CHARGE** with this kit; complete unit is priced at the cost of the tools alone.

**OPTIONAL—PICK YOUR OWN CONTENTS.** If you would like to select other Imperial Tubing Tools or Charging and Testing Tools not included in this kit, in place of some of the tools listed below, your Imperial Wholesaler will be glad to revise the contents to your specifications.

No. 392-F IMPERIAL SERVICE and INSTALLATION KIT for Residential Air Conditioning. Size of kit: 21" x 7 $\frac{1}{2}$ " x 7 $\frac{1}{4}$ ". Weight 34 $\frac{1}{2}$  lbs.

#### LIST OF CONTENTS

- 1 No. 274-F Hi-Duty Tube Cutter
- 1 No. 375-FS Flaring Tool for  $\frac{1}{8}$ " to  $\frac{3}{4}$ " O.D.
- 1 No. 360-FH Tube Bender for  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ ",  $\frac{3}{4}$ " O.D.
- 1 No. 93-S  $\frac{3}{8}$ " Swaging Tool
- 1 No. 93-S  $\frac{1}{2}$ " Swaging Tool
- 1 No. 93-S  $\frac{5}{8}$ " Swaging Tool
- 1 No. 93-S  $\frac{3}{4}$ " Swaging Tool
- 1 No. 208-F Inner and Outer Reamer
- 2 No. 99-FT Charging Hoses
- 1 No. 320-C Charging and Testing Unit



**IMPERIAL**

**THE WORLD'S  
LARGEST  
MANUFACTURER OF  
TUBING TOOLS**

*Emblem of Quality*





JUNE 1, 1959

Supersedes Price Sheet

Dated January 15, 1959

## NUMERICAL INDEX AND NET PRICES

Applying to

IMPERIAL TUBE WORKING TOOLS

CATALOG No. 3088

and SUPPLEMENT

Prices are subject to change without notice. Prices do not include any State Taxes.								
Catalog No.	Page No.	Price Each	Catalog No.	Page No.	Price Each	Catalog No.	Page No.	Price Each
37-CA		\$10.85	140-F 1/4	25	\$ .40	240-F 3/8	25	\$ 1.75
47-A		1.65	140-F 3/8	25	.45	240-F 1/2	25	1.95
48-A		1.95	140-F 1/2	25	.45	251-F	15	17.50
MB-86	19	Discontinued	140-F 5/8	25	1.30	256-F	18	21.75
MB-87	19	Discontinued	140-F 3/4	25	1.35	257-F Discontinued	18	21.75
93-F Order			140-F 7/8	25	1.40	260-FH	21	84.00
193-FA	9	5.15	140-F 1-1/8	25	1.45	261-G		1.60
93-FB	14	9.95	140-F 1-3/8	25	2.00	270-F 3/8	22	11.80
93-S 3/16	24	.55	140-F 1-5/8	25	2.25	270-F 1/2	22	16.55
93-S 1/4	24	.55	141-A		2.55	270-F 5/8	22	19.95
			142-A		2.95			
93-S 5/16	24	.75	142-F	25	3.15	270-F 3/4	22	23.10
93-S 3/8	24	.70				270-F 7/8	22	23.10
93-S 1/2	24	.95	143-A		4.85	270-F 1	22	26.00
93-S 5/8	24	1.35	161-C		.25ft.	270-F 1-1/8	22	26.00
93-S 3/4	24	1.50	163-F	20	1.85	271-F	22	2.95
			184-F	5	37.00			
93-S 7/8		1.80	193-F Order			274-F Order		
94-S 1/2 & 5/8	24	2.05	193-FA	9		274-FA	3	
94-S 3/4 & 7/8	24	2.90				274-FA	3	4.15
95-F Order			193-FA		5.15	275-FS	13	15.75
195-FA	9	5.75	193-FB	15	Discontinued			
			193-FS Order			276-FS	13	9.50
95-FS Order			193-FA	9	5.15	278-FS	13	1.70
195-FA	9	5.75	193-S	24	3.55	291-G		3.75
97-F	4	.45	194-S		9.95	295-FS Discontinued	12	7.50
101-F	20	2.55	195-F Order			296-FA		3.95
102-F 1/4	14	.30	195-FA	9	5.75	300-F	8	6.95
			195-FA		5.75	300-FP Order		
102-F 5/16	14	.35	195-FB	14	19.50	500-FP	12	
102-F 3/8	14	.40						
102-F 7/16	14	.55	195-FS Order			302-F 3/8	20	.95
102-F 1/2	14	.60	195-FA	9	5.75	302-F 1/2	20	1.40
102-F 5/8	14	.65	195-S	24	8.40	302-F 5/8	20	1.90
			203-FA		10.40	312-F	3	5.25
103-FS	10	10.40	203-FS	10	10.40	337-F	24	22.50
105-F Discontinued	25	2.90	206-F	3	9.95			
105-FF	25	3.70				338-F	24	1.50
112-F	20	1.05	208-F	5	2.85	339-F	24	14.15
120-F	19	14.40	225-F Order			340-F	24	2.75
			1225-F	19	10.10	341-F	24	2.75
121-F	19	17.90	226-F Order			345-F	24	18.50
122-F	19	14.70	1226-F	19	10.70			
123-F	19	11.90	227-F	4	1.95	346-F	24	1.55
124-F	19	15.20	227-FP	4	2.60	347-F	24	12.00
140-C		.31	240-F 1/4	25	.85	348-F	24	2.90
			240-F 5/16	25	1.50	350-FH	21	69.50



Catalog No.	Page No.	Price Each	Catalog No.	Page No.	Price Each	Catalog No.	Page No.	Price Each
360-FH	21	\$56.50	555-F		\$ 62.50	60515	10	\$ 5.55
361-FH	21	43.50	557-F		62.50	60769	4	.55
361-G		1.60	600-F	23	169.00	60996 Discontinued	15	
362-FH	21	32.00	637-F	16	163.00	60997 Discontinued	15	
363-FH		47.50	900-F Order			61293	12	5.45
			900-FA	11	11.65			
364-FH 1/8	20	7.50	900-FA		12.65	61637 Order		
364-FH 3/16	20	7.50	1225-F	19	10.10	67861		
364-FH 1/4	20	7.30	1226-F	19	10.70	61808 Order		
364-FH 5/16	20	8.75	25384	9	.55	69063	17	21.75
364-FH 3/8	20	8.35	26883	4	.12	61826	13,17	10.80
			28357	14	.50			
364-FH 7/16	20	16.30				61851	7	4.95
364-FH 1/2	20	14.95	28358		.12	61893 Order		
364-FH 5/8	20	25.00	28359	10,14	.35	68752		4.90
364-FH 3/4	20	33.50	28502		.40	61936	4	.20
364-FH 7/8	20	39.00	28776		.06	61948	16	24.75
			30009	9	.12			
365-FH	21	39.50				61960	16	23.05
370-C		1.60	30077	9	3.60	61982	16	6.35
374-F Order			30231	9,24	4.95	61983	16	1.65
374-FA	4	4.95	31296	4	.10	61984	13,16	4.95
374-FA		4.95	32532	8,9,12	.55	63587	9,15	3.65pr
			32633	4	.45			
375-FS	10	9.35				63633 Order		
376-FS	10	6.30	32638	10,14	3.10	68019	18	4.60pr
384-F	5	21.50	32640	10,14	.55	64201		1.05
390-F		Discontinued	32644		.12	64250	14	8.65
391-F	26	54.80	33045	4	1.05	64252	14	2.05
392-F	27	91.80	33046	4	.12			
393-F		90.55	33465	9	2.25			
394-F	26	70.60				64253	14	13.90
400-F	17	29.75	36273	9	2.70	64459		2.60
401-F	13	11.50	36277	9	3.65	64464		3.15
			36279	9	5.05	64742 Order		
402-F	17	41.75	36849	9,10,14	.50	68008	18	10.40
406-F		14.95	36850	9,10,14	.50	64743	18	4.75
408-F		37.00				64745	18	2.80
409-F		15.50						
410-F		5.70	36926		.40			
			37369	9	2.75	66418		.72
411-F 1-3/8		5.45	37677	12	3.35	67861		7.55
411-F 1-5/8		5.90	38379 Order			68008		10.40
411-F 2-1/8		7.90	64459	9	2.60	68012	14	.95
414-SK1/2		1.76				68013	14	.95
414-SK5/8		1.88	38381	14	4.20	68014	14	1.25
			38388	14	.90			
414-SK3/4		2.34	38584	9,10,13,14	.40	68015	14	1.40
414-SK7/8		2.69	38586	14	.50	68016	14	1.75
414-SK1-1/8		3.86	38593	13	3.60	68017	14	2.05
414-SK1-3/8		7.32				68019		4.57pr.
414-SK1-5/8		8.94	38600	13	1.20	68257	4	.66
			38766	10,13	3.60	68258	4	.55
414-SK2-1/8		12.60	38767	10,13	3.60			
414-SL 1/2		1.76	38769	10	3.75	68752	8	4.90
414-SL 5/8		1.88	38903	10	4.00	69063		21.73
414-SL 3/4		2.34				69077	15	4.60pr.
414-SL 7/8		2.69	38904	10	1.70	69516		.12
			38905	10	5.70	69947		3.90
414-SL 1-1/8		3.86	39022		.65			
414-SL 1-3/8		7.32	39023		1.00	69966		1.15
414-SL 1-5/8		8.94	39026		.90	69967		.50
414-SL 2-1/8		12.60				70119		.60
437-F	16	9.75	39029		.65	70348		2.80
			39035		.20	70349		2.80
438-F	13	6.50	39859	8	2.60			
500-F	7	9.95	60225	4	.75	70603		7.40
500-FP		8.75	60232	4	.20	71089		1.05
507-F	18	13.75	60233	4	.30	71110		.65
537-F	16	43.75						

**THE IMPERIAL BRASS MANUFACTURING CO.**  
**6300 West Howard Street CHICAGO 48, ILL., U.S.A.**